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3TDL

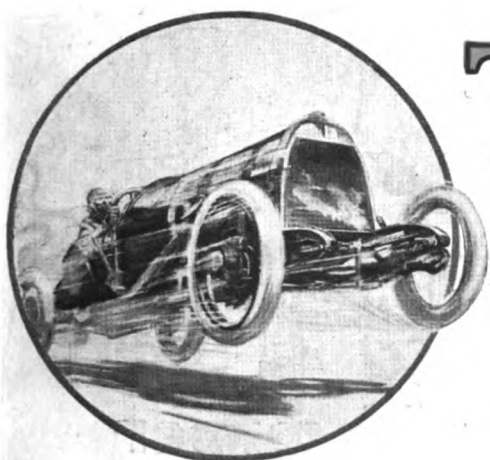
MOTOR WORLD

THE DEALERS' NATIONAL WEEKLY

Volume XLV
No. 1

New York, October 6, 1915

Ten cents a copy
Two dollars a year



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for that



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Jumbo
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\$.75

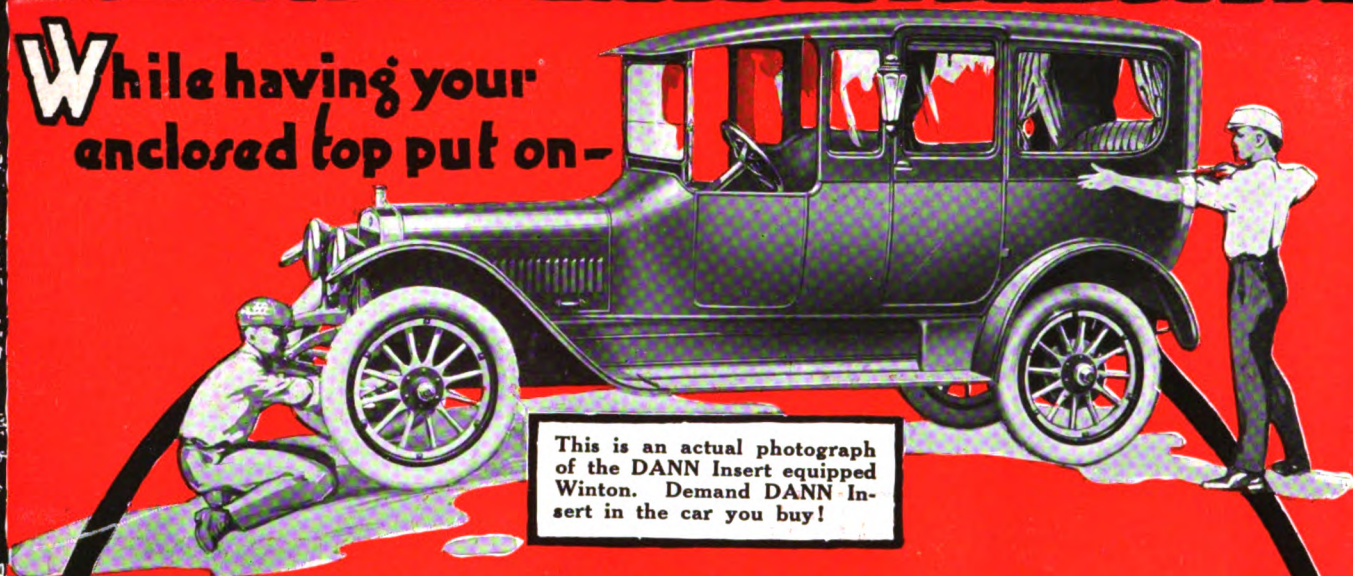
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Ford Special
\$.75

GIBSON-HOLLISTER MFG. CO.

3380 Washington Street

Boston, Mass.

While having your
enclosed top put on—



This is an actual photograph
of the DANN Insert equipped
Winton. Demand DANN In-
sert in the car you buy!

INSTALL DANN INSERT

The Inter Leaf Shock Absorber

Restfully quiet and luxuriously easy riding—a winter car of absolute comfort awaits you, if, placed between the spring leaves, you've ordered DANN Insert, "The Inter-Leaf Shock Absorber."

DANN Insert, by absorbing vibration from the ground up, removes those objections which make so many closed cars undesirable.

It eliminates the everlasting banging and jarring of the car windows. Prevents the body working loose and muffles the eternal creak-squeak-creaking that often goes unnoticed in open-bodied cars, but which is so much

more noticeable—so irritating—when shut in by a closed top.

While your car is in the shop for its winter tailoring—

While the workmen are attaching the closed top, and otherwise overhauling the machinery to put it in shape for the hardest work of the year—

Direct them to install DANN Insert. It quiets the rattles and squeaks, makes your car ride easier, and protects the springs against the added strain and rougher going of the winter season.

Furnished boxed in sets for any make or model of car

DANN SPRING INSERT COMPANY

2265 Indiana Avenue

Chicago, Illinois



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Insert in Your Old
Car; Demand It in Your New Car**

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Model 84
Coupe

\$1500
f. o. b. Toledo

This Smart Coupe Is Knight Motored

This motor has silent, sliding sleeve valves.

The effect is as though your power came from nowhere—you are unconscious of any definite power source.

You are conscious only of great power and unrestricted speed and radius of travel.

The beauty and distinction of this Coupe have made it the most desirable closed car ever designed.

It is sought after by those whose sphere demands above all things exquisite appointments in perfect good taste.

With the sleeve valve motor it is a perfected car.

But the price is only \$1500—

And the production is limited—in keeping with its exclusive smartness.

Deliveries now.

Catalogue on request. Please address Dept. 509.

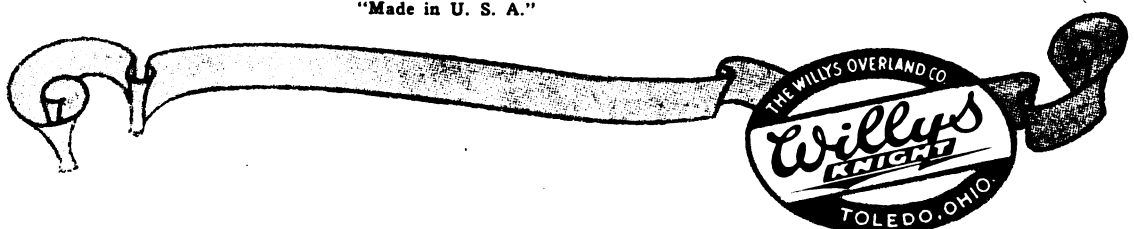
Also manufacturers of the famous Overland Automobiles
"Made in U. S. A."

Sleeve Valve Motor

Touring Car
\$1095

Limousine
\$1750

f. o. b. Toledo



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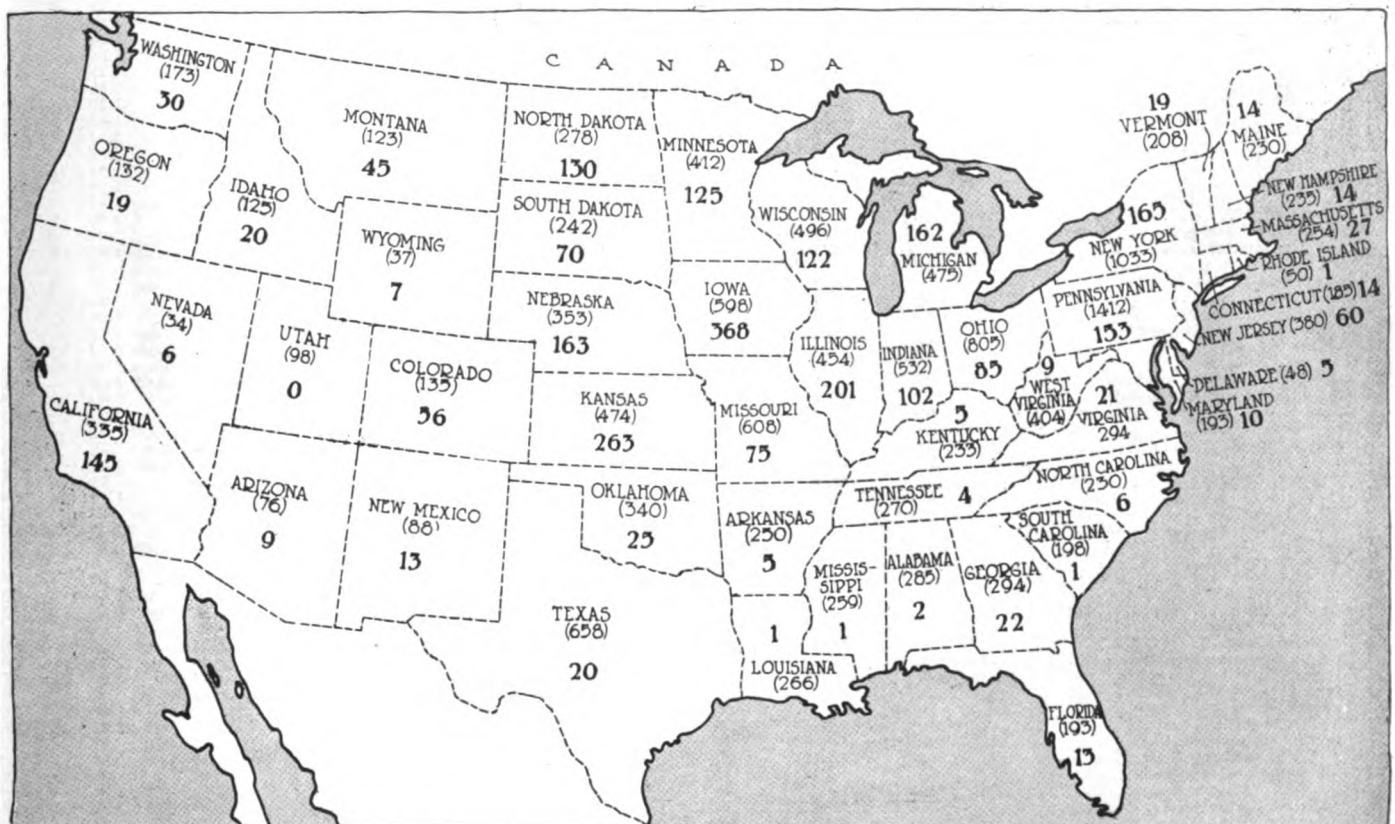
Vol. XLV

New York, U. S. A., Wednesday, October 6, 1915

No. 1

Are You in a Town of 200 to 800 Population?

If You Are This Article Is for You—An Initial
Accessory Order Costs \$179 and Sells for \$331



lished herewith is intended solely and expressly for the garageman in one of the fifteen thousand-odd small towns that dot the face of the country.

Still another important point which must be borne in mind is that this list is not a selection, hit-or-miss from some jobber's catalog. It is a carefully selected list of articles for re-sale and is the fruit of the experience of many years in the business of supplying garages all over the country and of every size with initial assortments of accessories and supplies. The list was prepared for

These Are All Staple Goods and Their Sale Will Net a Profit of 68%

Motor World by the Gibson Co., Indianapolis, and this is what Manager of Sales H. R. Williams has to say about it:

"I have had this matter handled by our sales manager of the local department, and the list does not include tires or garage equipment. These are exclusively re-sale articles—material for which the garageman will have regular calls.

"This stock would be suitable for the roadside or country garage in a town having a population of between 200 and 800 people.

"We have endeavored to include in this list items popularized by constant advertising, also a cheaper grade as an alternative inasmuch as every center will have a class of buyers demanding a moderate-priced article rather than to invest in something of a more expensive nature.

"This stock is selected after much experience in placing of Initial Orders with at least 1,000 garages. We bore in mind the question of the amount of money to be tied up as a first investment and figured on articles that would be moved, rather than lie on the shelves waiting a chance customer to purchase.

"The goods are all staple and, for instance, in the case of the tire covers, we have only included those that would be required for popular or medium-priced cars, figuring that the garageman could obtain the others on very short notice from the distributing center."

This list, then, is exactly what the garageman will want. You, who are located in towns between 200 and 800 population know that there is money in the sale of accessories and supplies. But

not all of you have known just what supplies to buy. That has been the great stumbling block. No one cares to tie up an unnecessary amount of capital.

Have you, for whom this Initial Order was prepared, ever taken the time to check the number of motor cars that pass your door in one day? Have you any means of knowing how many pass your door and stop somewhere else because they see before their eyes the very article for which they are seeking—that they must have?

According to the latest census, there are now 2,700,903 motor cars in use in the United States. How many of these are in your home town? How many of those in your home town would purchase their supplies of you if you had them and let that fact be known?

This Jobber Is Cashing in on Motor World's Initial Order

The Order and a Letter Are Going Out to Thousands of Garages in the South

STAMFORD MOTOR COMPANY

JOBBERS

RETAIL GRADE AUTOMOBILE SUPPLIES AND ELECTRICAL SPECIALTIES

STAMFORD, TEXAS.

September 27th, '15.

Dear Sir:—

You have often asked yourself; could I make money by carrying a stock of automobile supplies? You were tempted to buy a small stock and later changed your mind for the reason that you were not quite sure whether the investment would pay.

So as to give you an idea of the profits in automobile accessories, we have made up a list of the most popular items, showing approximately your cost, selling price, and the profits. A small investment of \$250.00 will make you a net return of \$325.00 or 92%. Can you beat it?

In all probabilities, the garageman located in a nearby town is getting the necessary business that you are entitled to and is doing well. Why? Because he has a stock, arranged nicely, his place clean and attractive.

Another good bet; you are overlooking, the Mail Order Octopus is coming into your city and taking the business away from you. Why? Because you have not a stock and cannot accommodate those that are anxious to buy from you.

Our prices are the same as any other jobbing house in the State of Texas, or other states, and if you have not already a stock of accessories, please consider the matter thoroughly and put in a stock. Don't wait because you are losing money all the time.

We might mention, we have had quite a few requests to ship all the goods as per the enclosed list, while a few asked us to cut it in half. We will be pleased to change to suit your requirements. Use enclosed order blank.

Awaiting your reply.

Yours truly,

STAMFORD MOTOR CO.

John O. Hughes

JOH—122

Asst. Mgr.

STAMFORD MOTOR CO.

JOBBERS

Automobile Supplies and Electrical Specialties

STAMFORD,

TEXAS

Make larger profits by carrying in stock items listed below

Quantity and Article	COST	SALE PRICE	PROFITS
1 electric tail lamp.....	\$.80	\$ 1.50	\$.70
1 oil tail lamp.....	1.00	2.50	1.50
Assortment Sunbeam Mazda Lamp bulbs.....	15.35	24.50	9.15
24 gas lamp burners.....	10	.25	.15
1 drum of carbide (100 lbs.).....	4.25	10.00	5.75
24 ft. 3/4 inch copper tubing.....	1.44	2.88	1.44
24 ft. 3-16 inch copper tubing.....	1.50	2.60	1.10
12 gas tank keys.....	.25	.50	.25
Supply of gas lamp tubing fittings.....	3.50	5.00	1.50
2 3/4 inch Mangin mirror lenses.....	1.40	2.20	.80
2 3/4 inch Mangin mirror lenses.....	1.25	2.00	.75
1 bbl. dry cells, Red Seal.....	50.50	54.00	3.50
3 hydrometers.....	2.25	3.00	.75
1 pocket ammeter.....	1.50	2.00	.50
Supply of magneto and coil parts.....	17.50	25.00	7.50
12 license brackets.....	3.00	6.00	3.00
1 tool boxes.....	8.25	10.00	1.75
1 Simplex jack.....	1.50	2.00	.50
2 Simplex jacks.....	1.80	2.50	.70
1 foot pump.....	2.00	2.50	.50
2 foot pumps.....	4.00	5.00	1.00
25 ft. of 3-16 cloth covered pump hose, used for gas tank connection.....	1.75	2.50	.75
12 tubes of patching cement.....	.25	.50	.25
6 cans of cure out.....	1.25	2.00	.75
12 cans Stamford cementless patches.....	2.25	3.40	1.15
12 outside blow-out patches, assorted sizes.....	7.50	15.00	7.50
12 Stamford inside blow-out patches, assorted sizes.....	4.20	9.00	4.80
12 cans Stamford tire talc powder.....	1.50	2.00	.50
100 tire valve cores.....	2.50	5.00	2.50
12 valve tools.....	1.50	2.00	.50
1 1 lb. carton of 1 oz. rolls of tape.....	.20	.50	.30
12 1-1 lb. rolls of 3/4 inch tape.....	.90	1.50	.60
2 small gasoline vulcanizers.....	3.00	4.00	1.00
12 pairs of Rid-O-Rid chains.....	11.67	15.00	3.33
6 pairs of goggles, assorted sizes.....	2.25	3.50	1.25
2 hand horns.....	6.00	8.00	2.00
6 horn bulbs.....	2.88	4.00	1.12
10 assorted spark plugs.....	20.00	40.00	20.00
20 ft. of spark plug cable.....	6.00	10.00	4.00
50 ft. of primary cable.....	2.50	5.00	2.50
100 ft. of lamp wire.....	3.50	5.00	1.50
100 dozen cell connections.....	2.00	3.00	1.00
12 lamp connectors, plugs and sockets.....	1.20	2.00	.80
3 lamp switches.....	2.00	2.75	.75
35 assorted fuses.....	.50	1.25	.75
6 automobile springs.....	21.00	30.00	9.00
25 assorted spring clips.....	3.75	7.50	3.75
1 bale of waste.....	10.00	20.00	10.00
6 doz. assorted steel balls.....	.60	1.20	.60
9 3 ft. radiator hose.....	2.40	11.75	9.35
24 hose clamps, assorted sizes.....	1.25	2.50	1.25
500 brake band rivets.....	1.05	3.10	2.05
Stayest brake band lining, 25 ft each, 6 sizes.....	12.25	107.50	95.25
12 grease cups.....	6.00	12.50	6.50
Assortment copper asbestos gaskets.....	1.25	2.75	1.50
6 grease guns.....	7.20	11.40	4.20
1 bbl motor oil.....	16.25	25.00	8.75
6 1 lb. cans motor oil.....	3.75	5.75	2.00
6 1 lb. cans grease.....	2.80	4.20	1.40
6 pints blue ribbon polish body.....	3.00	6.00	3.00
6 pints blue ribbon metal polish.....	.75	1.00	.25
6 pints neat's foot oil.....	1.25	2.10	.85
1 doz. cement radiator compound.....	4.75	7.50	2.75
12 tire gauges.....	4.00	6.00	2.00
12 adjustable wrenches.....	8.40	12.00	3.60
12 assorted screw drivers.....	1.80	3.00	1.20
6 Germantown hammers.....	1.80	6.00	4.20
Spring washers, machine screws, machine nuts cotter pins and taper pins.....	30.00	42.00	12.00
VICTOR RED TUBES.....	2241.00	2024.00	217.00
TOTAL.....	2241.00	2024.00	217.00

Profit 92 Per Cent

The Stamford Motor Co. thought so well of Motor World's Initial Order which appeared in the September 15 issue that it has reproduced the order, as shown herewith, and is sending it to all its dealers in the South. Above is a copy of the letter that accompanies the printed order. Also enclosed is an order blank and a self-addressed envelope. The Stamford company reports that already a number of garages have ordered this bill of goods

Civic Organization Benefits

Dealer Who Joins Such a Body Becomes One of the City's Business Men—The Charity Problem Solved

By Ray W. Sherman

MINNEAPOLIS, October 1—Why should the motor car dealer or garageman be a member of his town's civic association, the organization which is working for the interests of the home town?

The answer may be found in the reason why a large number of the motor tradesmen of this northwestern city are enlisted in the ranks of the Minneapolis Civic & Commerce Association. They also belong to the Minneapolis Automobile Trade Association, which is their own trade organization, but in addition are in the fight to make their city what it is becoming more and more every day, the metropolis of the Northwest.

They believe in Minneapolis. They are for her first, last and all the time. They boost. But in addition there comes to each and every member of this association—and every other good civic association—a direct and lasting benefit.

In every town where there is a civic organization which is in any measure worthy of support, there are local reasons why the motor car man should affiliate with it. There are benefits to him which are discernible only through a more than superficial examination. Even if the town be small—very small—the situation is only transplanted, not minimized.

Both Large and Small Join

In the motor trade of this city—as in the motor trade of every other city—there are big dealers and little dealers, big garagemen and little garagemen, but it is noteworthy that among the members of the Civic & Commerce Association are found the large and the small, the four-county dealer and the five-state distributor, selling 5,000 cars a year.

Herein lies one of the advantages to the individual dealer, especially the smaller man. By adding his name to the roster of the organization he has become one of the town's business men, even though he be seldom heard of otherwise by the members of the body. He has placed upon himself this brand: "I am one of the business men of the city. I am for the city. I want to work with all the other business men for the good of the city." And "the other business men" include the greatest in the territory. Selfish as it may seem as a motive for affiliating, there is in the mere association of names a value inestimable.

The Civic & Commerce Association is one of the big things of the northwest. The papers are filled with its activities. It does big things, and when the visitor

THIS is the second of a series of analytical articles by Ray W. Sherman, who is at present traveling through Northwestern territory for the express purpose of getting close to the problems with which the dealer, the garageman and the repairshop operator must wrestle. Mr. Sherman is possessed of keen insight and is well-equipped through long experience with the motor car industry to place before Motor World readers a careful analysis of the causes which make for success and the conditions which must be met to avoid failure. The third article will appear in an early issue.—Editor.

to a salesroom or a garage sees upon the wall a card of membership in the

organization it means much. It is to an extent a certificate of standing.

To some dealers, especially the larger and better known, this may not be of such great value, but to the smaller dealer and garageman it is worthy of consideration.

Indirectly there is in all cases another and more indirect benefit. It is in the business which may come through the development of the city itself. As the city grows, business must grow with it, and as business grows the dealer is bound to get his share. This benefit may not come soon—but it will come.

Dealer Enlarges Acquaintance

Of indirect benefit there is also the acquaintances the dealer may make in the meetings of the association. Gathered around the luncheon board are the best buyers of cars in the city. These are men every dealer is anxious to meet. It is not ethical to brazenly utilize an organization for business purposes, but since the object of the dealer is greater acquaintance this provides a vehicle through which greater acquaintance comes easily. One sale from any of the causes enumerated more than pays the membership expense of years.

If the dealer through his activity be-

TO SOLICITORS

No Subscription
donation or advertisement for benevolent purposes
will be given until endorsement card is presented or
Inquiry is made
of the
MINNEAPOLIS CIVIC & COMMERCE ASSOCIATION

THE COMMITTEE ON BENEVOLENT ASSOCIATIONS
Minneapolis Civic & Commerce Association

HAS INVESTIGATED AND BELIEVES IT TO BE WORTHY OF THE SUPPORT OF THOSE WHO DESIRE TO FURTHER ITS AIMS. THE COMMITTEE ENDORSES THE EFFORTS OF THIS ORGANIZATION TO COLLECT \$_____ FOR THE YEAR ENDING _____

CHAIRMAN COMMITTEE ON BENEVOLENT ASSOCIATIONS _____

WHOSE SIGNATURE APPEARS BELOW IS AUTHORIZED TO SOLICIT FUNDS FOR THIS ORGANIZATION

PREPARED BY ORGANIZATION NAME _____

NO. _____

MEMBERS ARE REQUESTED TO PAY BY CHECK TO THE ORDER OF _____

TREASURER _____

Minneapolis Civic & Commerce Association
MEMBER

FOR THE YEAR ENDING SEP 30 1916

J. H. Decker

IS A CORPORATION MEMBER OF THE

1914-15

Minneapolis Civic & Commerce Association

J. H. Decker PRESIDENT

Edward Strong SECRETARY

Above in the center is shown the framed card through which members politely refer solicitors to the organization. At the left is shown the card issued by the organization for the identification of accredited solicitors. At the right is a member's identification card. At the bottom is the certificate of membership

comes better known in his city, is a member of committees, is given any sort of job or in any way finds himself made known to men, he is benefited, and this is especially true in towns of from 10,000 to 100,000 population, where memberships are smaller and the opportunity for work is greater.

Direct benefits depend upon local conditions. One which has been scientifically developed in Minneapolis is the regulation of charitable contributions. In each member's place of business is a framed card which directs all unaccredited solicitors of contributions to secure the approval of the association before asking for money. The average man dislikes to turn down a request for charity. This tells him what is and what is not charity.

The applicant for the association's approval must convince the Charities Committee that the cause is worthy, and no hit-or-miss ventures get by. Each applicant must fill out a big four-page blank which asks for the innermost details of the work. The charity—or alleged charity—which can stand this examination is worthy. Also, all contributions and accounts are audited at the demand of the association.

Unnecessary charities are forestalled. When it was proposed to erect a new hospital for special work the organization upon investigation discovered that the existing hospitals were covering this field well and the proposed hospital was abandoned.

Municipal research has saved thousands of dollars in taxes, a direct benefit to members. Good roads are promoted. Housing conditions are improved.

Trade Tour Around State

Of especial value to the dealer members are the association's trade tours. Once a year a train of thirteen new cars, fresh from the car shops, is chartered, and, loaded with Minneapolis business men, including car dealers, it makes a week's circuit of the territory to spread the advantages of Minneapolis as a market and buying center.

This train swings out across country with two dining cars, stops are made en route, speeches are made, the business men of Minneapolis mingle with the people of the territory, better acquaintance is assured and a lasting impression is made. This has done much to send Minneapolis shooting into the foreground among the distributing cities of the world—not of the United States, but of the world.

And all of this has played its part in making the city the king of car distributing points. The territory is wealthy. It is going to buy somewhere. The Civic & Commerce Association says: "Buy in Minneapolis." It is also one of the reasons why this wealthy country is short of cars this fall; there are not

enough cars built to meet the demand.

The organization has 3,300 members. It has a large staff of workers. It is not fitting to tell of the organization's achievements without telling how it got the Federal Reserve Bank, which is a benefit to all tradesmen, motor car and others.

When the bank question was being discussed Minneapolis decided that it was the right spot for one of the reserve banks. It had first to convince the bank authorities in Washington that the section needed a bank and, second, that Minneapolis was the place for the bank.

The association began to compile statistics. In 16 days it had a book an inch thick, nicely printed. The edition went to press at 2 a. m. on a Sunday. In

5 hours 500 books were off the press and the committee got its first look at them on its way to Washington that afternoon. The books were unloaded on the bank committee in Washington. They told in unimpeachable figures what Minneapolis amounts to, and the association went home with the bank in its pocket. The book alone cost \$6,000, but what is a little item like that if it will get a Federal Reserve Bank?

The Minneapolis dealers belong to the association because they are Minneapolis boosters. That is their prime motive. But, having taken this action, the advantages enumerated accrue volens volens. And what applies to Minneapolis applies largely to the majority of other towns.

Closed Cars Are Increasing in Popularity

Quick and Early Delivery by Factory Essential to Material
Up-building of Trade—Can Be Used Year Around

By Ray W. Sherman

MINNEAPOLIS, September 27—The enclosed car as a vehicle of comfort for the motorist of the northwest bids fair to come into its own. The northwest, progressive, alert and prosperous, never did hold off very long on anything that added to the comfort of life and which smacked of up-to-dateness.

There has been some enclosed car business with the dealers in this territory and there will be more. How much more is conditional. The conditions are the extent to which the dealers as a class prosecute the necessary educational work and the celerity with which manufacturers send their enclosed jobs into this section. Just now there are few cars of any kind to be had and many dealers are not as active in selling as they would be had they cars of any kind to sell.

Early Deliveries Required

To sell enclosed cars in this territory, however, they must be secured early in the fall and there must be early fall deliveries. These vehicles could and would be used from September 1 until January, when the weather becomes so cold that the man who has not a chauffeur to care for his car generally has trouble starting the motor if it is left still very long no matter how much anti-freeze is put into the cooling system.

When the real cold sets in hardly 4 per cent of the cars are kept running, states Frederick E. Murphy, Paige and Mitchell dealer, and all the enclosed jobs, too, would be put away at that time.

That there is a big prospect of enclosed car business is the belief of L. A. McKay, Franklin dealer, and E. B. Stimson, Empire distributor, considers the coming of the detachable sedan top

a big boost for the enclosed trade. The new Dodge top and the move in enclosed cars by Overland, Hudson and Cadillac is stimulating the trade generally. The coupe seems to be a popular type, too.

Closed Cars Sold in Showroom

As to displaying enclosed cars at a show in the fall or at the state fair show, Harry Pence, Buick distributor, says that the interest in the fair show lies in open jobs and that most enclosed sales are made in the salesroom. Most of the other dealers, while they believe there will be more enclosed business in the future than in the past, do not think a fall show for the promotion of this business would be worth while. But one show a year should be held, they state, and that in February, following the Chicago show, as is now the case.

With a show in the fall, enclosed car business would be the only real result, if it were featured, and the ensuing selling season would be very short. With a show in the winter all the dealers in the territory can come in and a stimulus is given to spring business.

A few seem to look with favor upon the staging of a special week's display of enclosed cars in the salesrooms with a line of enclosed car advertising paid for out of a jack-pot contributed by the interested dealers and with such individual advertising as each dealer wished to carry, although this plan is hardly beyond the suggestion stage.

One reason why the enclosed car is desirable for this territory, states one dealer, is that there are but three months in the summer when it is possible to drive in the evening without feeling chilly. The rest of the time an enclosed car is very comfortable.

Facts About Cars

How Ball Bearings Are Manufactured

The manufacture of the ball commences with the annealing of the steel wire which is performed in large furnaces so that the coil of wire is heated evenly and also protected from the atmosphere or other scale-forming gases. The next operation is to draw the wire, so reducing its diameter slightly and consolidating the steel.

From this moment the making of the ball is automatic. Special machines automatically cut off "slugs" from the coil of wire, and each slug is dropped between a pair of cup dies which stamp it into a roughly spherical form. Although the dies which do the stamping make the ball roughly there is left a fin or ragged edge of metal round the junction of the dies, and this is removed by a rough grinding process before the balls go to the heat-treating furnaces.

Returning to the heat-treating plant, the balls are poured into iron trays and placed in a gas-fired furnace, where they are raised to a very exact temperature before hardening.

After hardening the balls are fairly round, but have a black exterior, so there remains a good deal of metal to be removed. The way in which this is done and the ball brought finally to within a ten thousandth of an inch of correct size is by causing the balls to roll in a vee groove in the presence of an abrasive material. In the ball finishing shop are rows of machines with horizontal spindles bearing the grinding plates, and these plates have spiral vee grooves cut in their faces so that balls may be fed to the center of the plate and taken from the outside continuously. The process is automatic since the balls leave the bottom of a hopper, pass through the grinding groove and return to the hopper; every now and then a man takes a ball from the machines and checks it

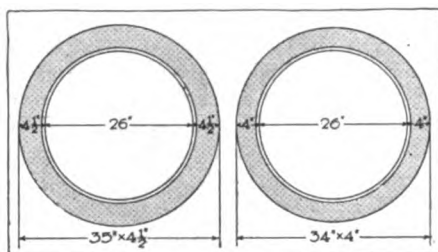


Fig. 1—Diagram showing that a 34 x 4 tire and its oversize have the same internal diameter

on a gauge to see what progress is being made, but the steel is so hard that it takes hours to bring an average hopper full of balls down to finished dimensions.

Finally the balls are polished by putting in tubs mounted on shafts at about 45 degrees to the horizontal and mixed with small bits of leather. As the tubs are revolved the balls roll over against each other in their efforts to keep to the bottom of the tub, and this continued friction against the leather puts on the high polish.

How Oversize Tires Are Calculated

The relation between standard and oversize tires is very easy to remember providing the principle is understood. For example, the oversize of a 34 x 4 is 35 x 4½, Fig. 1; this particular oversize was decided upon because it has the same inside diameter as the 34 x 4, namely 26 inches. In other words, an oversize tire must fit the same rim as the standard size it displaces; hence the reason for requiring the inside diameter to be the same.

MEANING OF SYNCHRONISM

The word synchronism when applied to a jump spark apparatus means that the spark in each cylinder occurs at a

given position of the piston for any given setting of the spark lever. That is, if the spark lever were half way advanced the spark might occur in cylinder No. 1, 1 inch before top dead center, and the sparks would occur in the other three cylinders at exactly the same piston positions. This regular occurrence of the spark in all the cylinders makes for an even running motor, and is an important feature of all modern ignition apparatus.

Gas Charge Is Not Exploded But Burned

The term explosion when applied to the combustion of the gases in an automobile motor is often misleading, because this word is generally associated with gunpowder and dynamite; the word explosion gives the idea of instantaneousness, but this is not the sort of explosion that occurs in a gasoline motor. Rapid combustion is a term that better describes what takes place. When the spark occurs in the cylinder it sets fire to a small sphere of charge directly surrounding it, and the raising of this little sphere to a high temperature causes the combustible mixture adjacent to it to be raised to a sufficiently high heat for it to take fire. In this manner the boundary of the sphere is gradually enlarged until all the charge is consumed, Fig. 2. Since the shape of the cylinder is irregular in form, the spherical surface of the flame is flattened and its progress ended whenever it comes into contact with a cylinder wall. Just as in the case of a stone dropped into the center of a rectangular pan of water, the ripples will spread in circles of increasing diameter until the edges of the pan are reached and then they will stop.

The combustion is completed most quickly in the I-head or Knight motor with the spark plug in the center. The L-head and T-head with two-point ignition are next. In the latter the flame is started from both sides simultaneously. It takes longest in the T-head with one spark plug.

Never wash the car in the bright sunlight. The sun dries the water too rapidly and causes streaks in the finish.

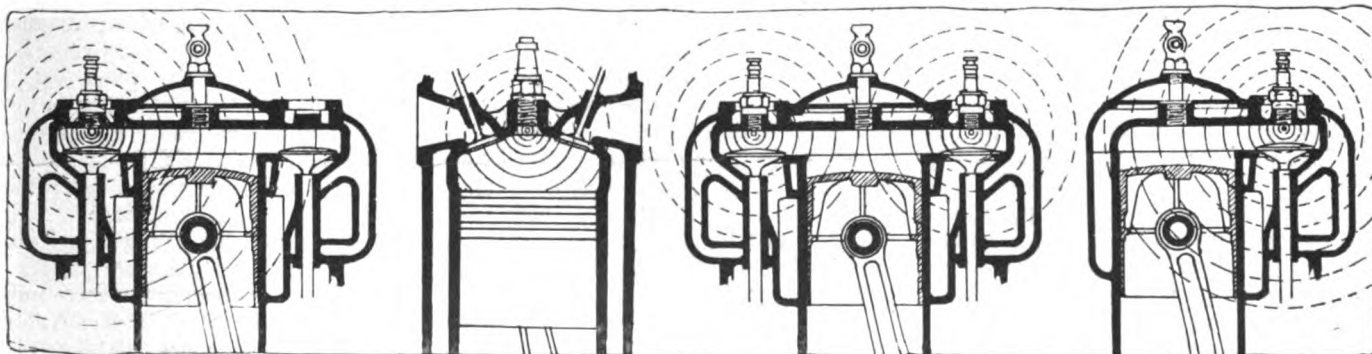


Fig. 2—Diagram showing progress of combustion in T-, I-, and L-head motors. The flame proceeds spherically from the spark plug point. From left to right—T-head with one spark plug, I-head, T-head with two spark plugs and L-head

Assail Cut-price Mail-order Houses

Manufacturers Should Sell Only Legitimate Jobbers— Simple Matter to Control Re-sale Price

In order to ascertain the extent to which the cut-price mail-order house is eating into the profits of the legitimate jobber of automobile accessories, Motor World addressed a letter to all the members of the National Association of Accessory Jobbers, calling attention to a letter which appeared in the September 1 issue of Motor World. This letter was from President E. M. Cumings, of Cumings Bros., Flint, Mich., and stated, in brief, that concerted action on the part of jobbers is necessary to root out this evil. Following are some of the replies which have been received to date and which show how strong is the feeling against the cut-price mail-order house:

Will Not Handle Goods

Editor Motor World:

In regard to the extent of the evil of the cut-price mail-order houses, will say we do not handle the goods that the cut-price mail-order houses handle if we can help it, and if we find that they are handling something that we do, we make it a point not to handle these goods but handle something they do not handle.

We think that it is up to the manufacturers to sell only to the legitimate jobbers, and it is a question of selling either to the jobbers or the cut-price mail-order houses. We do not think that the legitimate manufacturers favor selling to mail-order houses, but in some way they get hold of some of the goods. If the manufacturers just sold the jobbers there would not be much chance for the cut-price mail-order houses.

Yours very truly,
 Fargo, N. D., Sept. 28. J. D. Grant.

Have Much to Contend With

Editor Motor World:

Replying to your letter of September 24, calling our attention to a letter concerning price cutting on the automobile accessories, appearing in September 1 issue of Motor World.

Wish to say that we have a good deal of this competition to contend with in the territory we cover not only from mail-order houses but some of our competitors, who are trying to do a jobbing business in a small way.

It is a fact that with one or two exceptions we have very little trouble as far as price cutting is concerned, excepting through the so-called semi-jobber,

who has been fortunate to obtain jobbers' or distributors' prices from some factories, who are not particularly careful to whom they quote such prices.

It seems that firms of this sort figure that it does not cost them as much to do business as some of their larger competitors and they make a leader of

QUINN & MCGILL COMPANY SETS THE QUESTION BEFORE ITS CUSTOMERS LIKE THIS:

Why Do Stores Cut Prices?

No merchant cuts prices because he prefers to lose money.
 His purpose is to make money. What he loses on the cut-price article he expects to make up elsewhere. Here there are two ways possible of making up the loss:

- (1) Charging more profit on other articles.
- (2) Getting an increased volume of business—"drawing trade."

The first of these two ways is clearly disadvantageous to the public. One customer gets a bargain; others pay excessive prices. And the excessive prices must total up to more than the bargain; else the scheme wouldn't be worth while for the storekeeper.

The second way—price-cutting to get increased volume—has been defended as legitimate advertising.

But is it?

Obviously the price-cutting is done to create an impression—an impression that the store is cheaper than others—not only on the cut-price line but on other lines. Quite possibly this is a false impression. The store that sold everything at a low would soon have to go out of business.

But the price-cutter continues to create the impression.

He very often does this by trading on the reputation which a manufacturer has built up for his article. Price-cutting is of no use unless it is done on a standard article which has a well known standard price and is known to be worth it. The price-cutter takes unfair advantage of the hard work done by that manufacturer. But by thus cutting the price, for his own shorter purpose, he tends to make the public believe that the article is not worth the standard price.

In the same way he unfairly compares with other stores whose policy is to keep a fair, even level of honest prices on all goods all the time. He makes these stores appear to be high-priced simply by being cheaper than they are on one or two articles of lower value.

The price-cutter then, by his so-called "advertising scheme," injures the manufacturer and his own competitors. But he also injures the public, because

- (1) He makes it difficult for the public to know clearly the real value of merchandise.
- (2) He discourages manufacturers from trying to establish a fair, standard value.
- (3) He undermines the reputable all-the-year-round stores which render real service to the buying public.

MODERATE PRICES AS "TOLD" BY THE HIGHEST STANDARD OF QUALITY ARE CHARACTERISTIC OF THE QUINN & MCGILL MOTOR SUPPLY CO.'S entire stock.

Catalogue will be sent on request.

Correspondence invited

The Quinn & McGill Motor Supply Co.
 1532 to 1538 Broadway
 Denver, Colo.

EVERYTHING for the AUTOMOBILE
 Successors to The Fry and McGill Motor Supply Co.

some established article at cut price and endeavor to work up a volume of business.

We feel that the only logical way to cope with this evil is by direct cooperation between the manufacturer and the legitimate jobber.

Articles which have gained a national reputation and on which there is a standard resale should not be sold at cut price, and since the Cream of Wheat decision, which was handed down by Judge Hough on July 20, it seems that it should be a very simple matter for a manufacturer to control his resale price to that dealer.

We assure you that the territory which we cover is not any exception in regard to the price-cutting evil; in fact, we be-

lieve we are harassed a great deal more than other sections of the United States.

The Toledo Rubber Co.,

Edw. M. Wise,

Toledo, Sept. 27. Mgr. Automobile Dept.

One of Worst Evils in Trade

Editor Motor World:

Referring to your letter regarding the question of cut-price mail-order houses, this is unquestionably one of the worst evils confronting both the dealer and the jobber. The very fact that they are selling the consumer at dealers' prices not alone robs the dealer of the opportunity to do business, but disturbs trade conditions in that particular community, as there can be no question but what the purchaser tells of his ability to obtain these articles at such low prices to all his neighbors.

The remedy as we see it would be to commit accessory manufacturers to a policy that would eliminate the mail-order house in his distribution. In other words, positively refuse to sell these mail-order houses unless they guarantee that they will not sell this product to the consumer at other than a fixed retail price, such price to be the same as that asked by the legitimate automobile dealer or garageman.

We have numerous instances in this section where the garageman or dealer purchases his entire requirements from the mail-order houses and at prices below that asked by the jobber. In fact, some of these articles are purchased lower than the jobber himself can buy them. The stabilizing of the accessory business and the survival of the legitimate dealer and garageman will depend largely on the elimination of the price-cutting habit of the mail-order houses, and this can only be accomplished through the cooperation of the manufacturers and their insistence on a price maintenance policy to which every one of these mail-order houses should be committed.

The Gibson Co.,

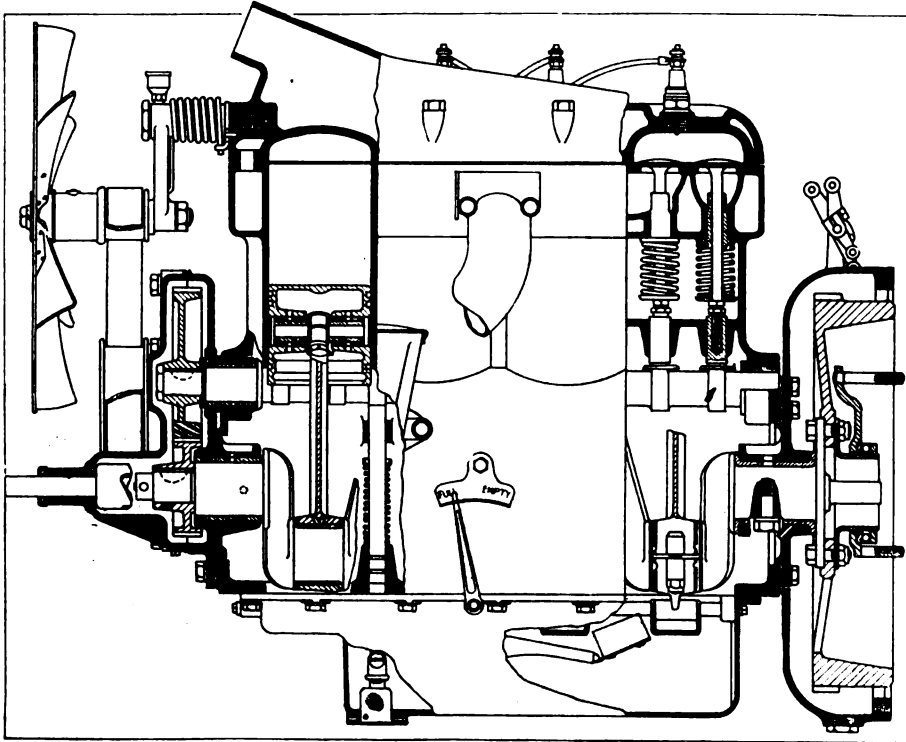
H. R. Williams,

Indianapolis, Sept. 27. Manager of Sales.

Crumley's Profits For Good Roads

DETROIT, October 1—A. A. Crumley, King distributor for Michigan, has announced his readiness to contribute a certain percentage of his yearly profits for the improvement and building of good roads, provided other dealers throughout the state cooperate. "Michigan has about the worst roads in the country, whereas it should have the best," says Crumley. "There should be a joint committee on good roads matters, the members to be chosen from among the legislature and the automobile industry. The automobile people know a good deal about roads and could give much valuable information."

Points Every Repairman Should Know— About the Maxwell



Section through 1916 Maxwell motor, showing construction. Method of putting the various parts together is clearly indicated

THERE are a few things about the Maxwell that should give any repairman trouble even if he has had no previous experience with this make. Motor, clutch, gearset and axles offer nothing out of the ordinary. How these various units are taken apart and adjusted or repaired is plainly seen.

No difficulty should be experienced in removing the cowl tank. It is merely necessary to loosen the steering column, disconnect the speedometer shaft and gas line, and then unbolt the tank.

In timing the magneto, the points should be set to break when the piston is $\frac{1}{4}$ inch before top dead center and the spark is retarded.

The valve timing is as follows: Intake opens 6 degrees after center; closes 32 degrees after center; exhaust opens 43 degrees before center and closes 6 degrees after center.

The front wheels should be gathered $\frac{1}{4}$ inch.

It should be remembered in lubricating the car that a heavy oil and not a grease should be used in the gearbox.

The lighting system is a 12-volt single unit Simms-Huff machine, which operates as a cumulative compound motor; that is, it has both a shunt and series winding. When generating, the device operates at 6 volts and is driven by belt. The battery is divided into 6-volt halves,

and this is why it is possible to charge a 12-volt battery from a 6-volt generator. The shunt series fields now oppose each other and thus help in the regulation of the voltage.

The output of the machine is regulated according to the service required by a slipping belt, whose tension is adjustable at the fan support. A charging rate of from 8 to 15 amperes may be had, the former being for country use where the car is driven a lot but starting is infrequent, and the latter is for the city, where the reverse is true.

In addition, there is a voltage regulator of the vibrator type which adds

THIS is the third of a series of articles which will appear from week to week on knotty points in the care and repair of the various popular cars.

Although most cars are much the same, there are details on every one that give difficulty to the repairman the first time he encounters them, and it is the object of this series to give enlightenment on these points.

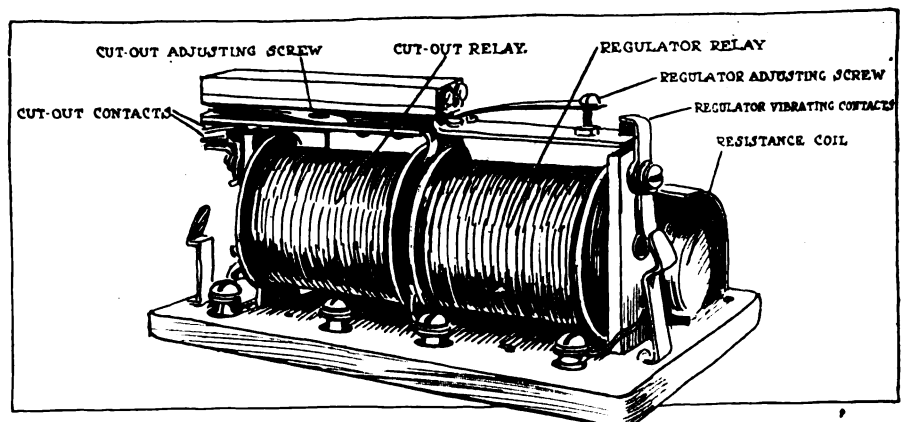
It is suggested that the repairman save these articles so that they can be used as a ready reference when a car with which he is unfamiliar is brought to him for repair. We shall be glad to answer any and all questions pertaining to maintenance.—Editor.

resistance to the generator field as the voltage rises.

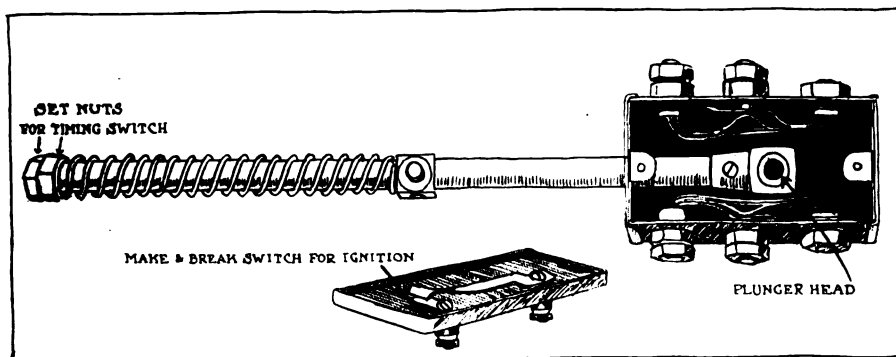
The starting switch is bolted to the left side of the gearset and is so arranged that it automatically connects the storage battery halves in series or in parallel, the former being for starting and the latter for generating.

The terminals on the cut-out relay are stamped as follows: Bat+, Dyn+ and Dyn-, Bat-. Bat- connects to the negative side of the ammeter and thence to terminal No. 4 on the starting switch. This connects it permanently to +R of the storage battery through the ammeter. Dyn- and Bat- connect to -L terminal of the battery.

To adjust the timing of the starting switch so that the contacts will be made at the proper time, two set nuts are placed on the opposite ends of the shaft carrying the plunger head, and by adjusting these, starting and generating



Combined cutout and voltage regulator relay. At the left is the cutout and at the right the relay



Starting switch, showing contacts and adjusting nuts for changing the switch movement

contacts may be made sooner or later, as desired.

A long bolt set nut will be found on the boss of the starting lever for the purpose of limiting the movement of the starting switch. This bolt should be adjusted so that full electrical contact is made.

The Gray & Davis system used on 1914 Maxwells is a two-unit outfit of 6 volts. The generator should deliver 10 amperes at a speed of 10 m. p. h., at which speed the cut-out points should close.

If, for any reason, it should be necessary to take out the generator, remove the wires from terminals L and N and fasten them firmly together and tape the joint. If the storage battery is taken out the wires running to the terminals should be joined and taped.

The normal ammeter readings are as follows:

Over 12 m. p. h. Off.	Charge 6 to 9 amps.
Over 12 m. p. h. On.	Charge 1½ to 2 amps.
At Rest. Off.	Zero
At Rest. On.	Discharge 5 to 6 amps.

CARE FOR FROZEN BATTERY

If a battery is frozen, the amount of injury depends on how soon the battery is recharged. The freezing tends to loosen the active material in the grids and if the battery is allowed to stand for any length of time this material will drop to the bottom of the jar and soon there will be nothing left of the plates but the grids. When the battery reaches this condition it is ruined; but if it is taken to a service station before the material has a chance to loosen, recharging will put the battery back into condition.

Remember, however, if the gravity of the battery is kept up where it should be and the battery is charged, it is almost impossible to find a temperature low enough to freeze it.

WASH EVERY 24 HOURS

No car which has been in service should be left unwashed for more than 24 hours. Mud drying on a body of varnish takes up the oil from the varnish, and in so doing destroys the luster. Road dirt or dust picked up on highways largely given over to horse travel

is often strongly saturated with ammonia, and all such accumulations are especially destructive to the finish. Such road refuse if left to dry upon the finish not only spots the varnish but fractures its film, and causes it to decay and crumble away.

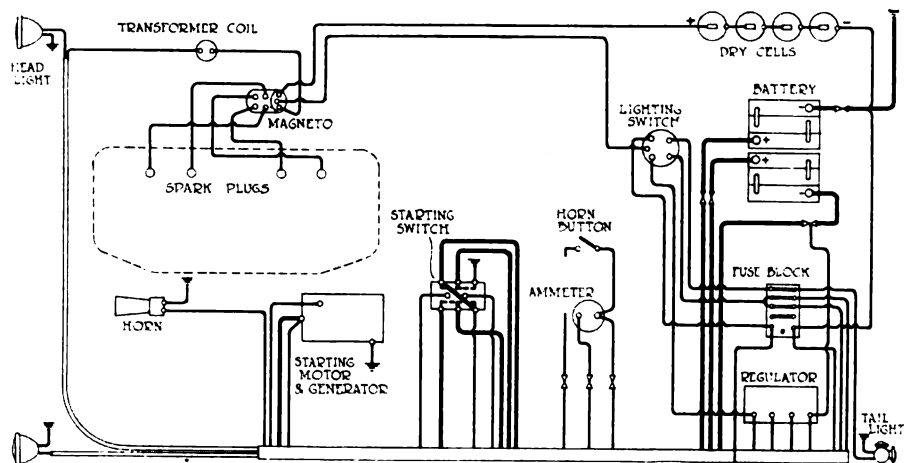
Mud and dirt from roads traversing lime districts are likewise highly destructive to both the luster and the fabric of varnish, the latter disintegrating under the effects of the lime. Some varnishes will spot under the effect of soapy

or dirty water, the alkali and capillary mediums contained in these waters going at once at the luster of the varnish.

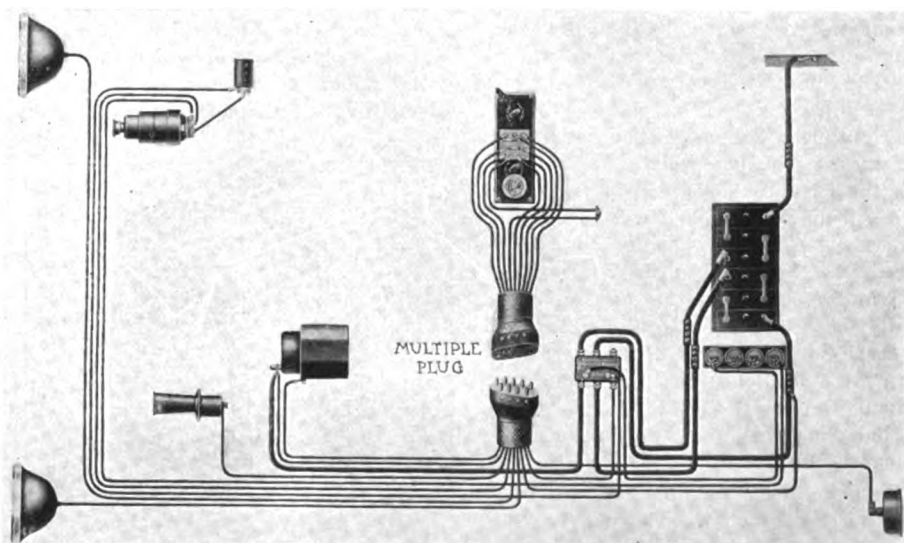
Many manufacturing and industrial cities are so poisoned with deleterious fumes that the finish on the irregular, and too infrequently washed car is spotted and deprived of its luster in a comparatively short time. Moreover, loss of luster in the finish, without any apparent spotting of the varnish, is a direct result of failing to wash the car regularly and at proper intervals.

SAVE METAL SCRAP

Scrap boxes for metal turnings and old parts will not only serve to keep the repairshop neat but will also result in a saving of money. There should be a box for aluminum and brass turnings, and scrap boxes for cast iron, wrought iron and steel parts. The metal may be sold when sufficient is collected. The iron and steel, however, will be found useful in many ways. The bolts, nuts and screws in these boxes should be sorted from time to time and the good pieces saved; likewise bits of steel stock that may be useful.



Simms-Huff motor-generator system, showing how wires are connected to the different units. The magneto circuit is also shown



Wiring for starting, lighting and ignition on 1916 Maxwell, showing multiple plug which allows the car body to be removed without disturbing any of the wiring

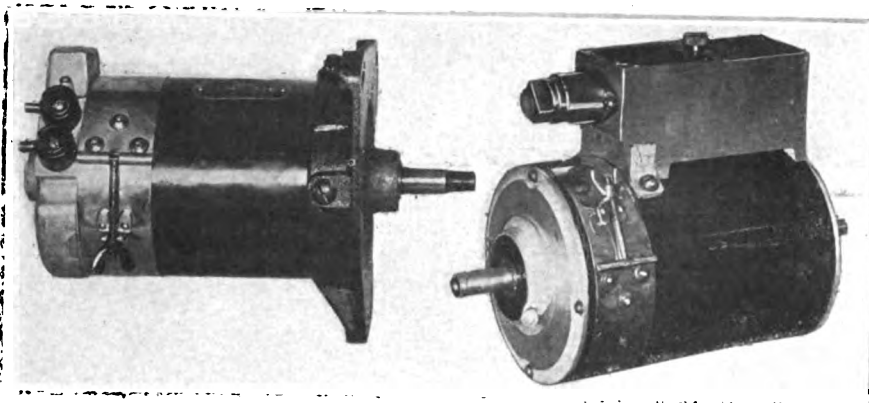


Fig. 1—Bijur constant current type of generator in which third brush regulation is used

Fig. 2—Voltage regulated generator, showing detachable regulator mounted on top

Bijur Apparatus Lighter and Simpler

Few Constructional Changes in Lighting and Starting Systems—Separate Motors and Generators and Combined Unit in Line

DURING the last two years the most notable direction in which development of electrical equipment for the automobile has taken place is that of increased efficiency in conjunction with a marked reduction in the size and weight of the principal units. Compactness is a fundamental requirement and this has led to the cutting down of much metal in generator and motor construction, especially in regard to the magnet, though there has also been much weight saving in the more efficient and compact methods of arranging the windings. With this desire for compactness has come the necessity for ease of manufacture in order to keep the production cost inside the competitive field.

Cylindrical Form Adopted

After more than three years experience the Bijur Motor Lighting Co., Hoboken, N. J., has decided that the above requirements are best obtained by the adoption of a simple cylindrical form for the field magnet casing with four inserted poles. For 1916, therefore, the Bijur output will consist of motors and generators constructionally identical, with the exception of the windings and size. All magnets are cut from seamless steel tube. All are four-polar with drop forged poles screwed in after inserting the windings. The motors are designed for flywheel connection only either by direct sliding pinion or through reduction gear and sliding pinion. The Bijur company, however, does not supply gearing, believing this to be the business of the car builder.

The generators are divided into two classes irrespective of size, namely, the constant-current type, in which the output is governed inside the generator by means of the third brush principle, and

the voltage regulated type, in which a special vibrating regulator of Bijur design is mounted on top of the generator casing, holding the voltage by the use of a resistance inserted in the shunt field.

Besides the separate motor and generator there is a motor-generator set for connection by chain to the engine. This design is remarkably simple and is suited to the needs of the smaller sizes of power plant.

The outfits can be classified as follows:

- | | |
|--|---|
| A Constant current generator Geared motor | B Constant current generator Direct acting motor |
| C Voltage regulated generator Geared motor | D Voltage regulated generator Direct acting motor |
| E Motor-generator | |

Constant Current Unit Is Simple

The constant current type of generator has the great advantage of simplicity, all the control being located inside the generator casing. The third brush principle is used, Fig. 6, in which the speed of the armature controls the amount of current passing through the shunt coils

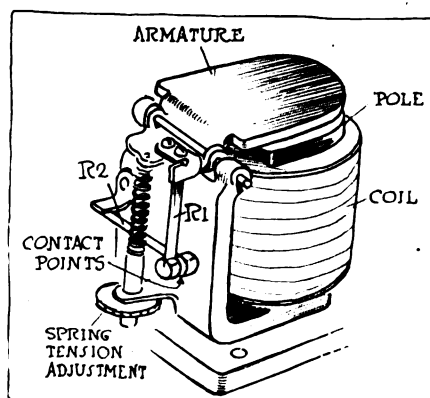


Fig. 3—Detail of the Bijur vibrating reed voltage regulator

by field distortion. There are no moving parts in connection with the control and therefore nothing to get out of order.

The voltage regulated generator is governed by a vibrating regulator which is made only in one size for mounting on the magnet casing. This regulator differs from others of similar type in the arrangement of the contact points, Fig. 3, which are fitted to the ends of brass reeds so as to preserve a clean contact surface at all times by varying the actual point at which the spark occurs. The coil is arranged vertically with the hinged iron armature above. Behind the hinge on an extension of the armature one of the two reeds, R1, is fitted, while the other reed, R2, representing the fixed point is arranged horizontally so that the weights at the ends, in which the platinum points are inserted face one another. An adjustable spring which holds the armature away from the core is provided.

Regulation Is Automatic

When attraction of the armature takes place as the speed of the generator rises the contact points are separated. This inserts a resistance connected across the contacts, Fig. 6, in the shunt field, thereby cutting down the power of the field magnet. The spring then returns the armature and again closes the points, allowing the shunt field full current on which the action is repeated. On high speeds this armature vibrates at a fast rate and the claim is made for the special reed arrangement that the contact points cannot become pitted owing to the sideways vibration of the surfaces.

In the same rectangular aluminum casing, Fig. 4, the cut-out C is fitted and all the connections to the generator are made by plugs P, which are inserted into sockets in the generator casing. No electrical knowledge is required in changing the regulator. The act of putting it in place on the generator and fastening it by the single thumb nut automatically makes all necessary connections through the plugs.

Replacements Made Easy

This feature is of great value in the case of a break down or failure on the part of the regulator. All the dealer does is to remove it, forward it to the maker and replace with a new one. By this arrangement the maker can seal up the regulator and repair according to guarantee only when the seals are unbroken. The connection to the outer circuit is made through a two-point plug, T, which is inserted in a socket, S, in the end of the regulator casing. This plug is provided with a small handle which can be moved over now and then when the owner thinks of it, the effect of which is to cause the current to reverse its direction through the contact points.

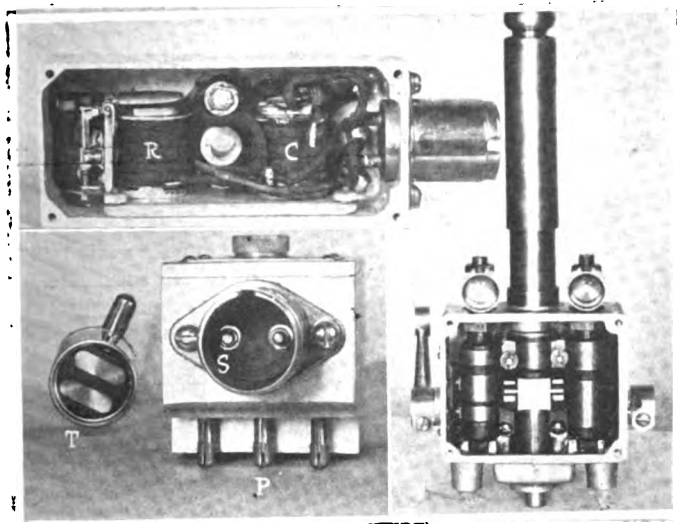


Fig. 4—Left—Interior and end views of the detachable regulator, showing also the change-over connecting plug T. In the same illustration is shown a view of the Bijur plunger type of starting switch with the cover removed

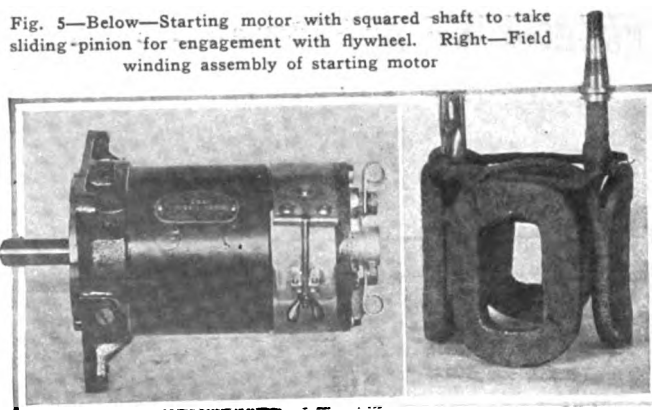


Fig. 5—Below—Starting motor with squared shaft to take sliding pinion for engagement with flywheel. Right—Field winding assembly of starting motor

may be strapped in a cradle or mounted by the end cover on the crankcase arm. In the latter method provision is made for chain adjustment through slotted holes for two of the three bolts, the unit swinging over on the third bolt while adjusting.

The starting motors are series wound and in the direct-acting type have either a squared shaft to take the sliding pinion or a screwed shaft for the self-acting momentum type of pinion. In the latter design the revolving shaft pulls the pinion automatically into mesh; the flywheel throwing it out again as soon as firing commences.

Plunger Starting Switches

The starting switches, Fig. 4, are plunger operated and can be located under the floor with the plunger projecting for foot actuation or interconnected with the pedal that brings the driving pinion into mesh with the flywheel. A flat resistance is incorporated in the switch which is included in the circuit on the first movement of the plunger and cut out when the plunger is pushed home. This insures easy meshing and a gradual start.

By using the third brush principle of regulation on the motor-generator the moving parts are brought down to the minimum. The field coil for generator purposes is a shunt across the third brush and one of the main brushes, Fig. 6. When the car slows down below the minimum charging speed the unit automatically takes up its duties as a motor helping the engine. By this means the engine is prevented from stalling.

The method of manufacture of the magnets and the assembly of the windings is of particular interest. Raw stock in the form of seamless steel tube is fed into automatics which machine inside and out and cut off to the required length facing both ends accurately. The shells are then taken to a large press which punches out the holes which give access to the brushes. Until this year this par-

ticular operation was performed in the milling machine, which was naturally several times slower than the cold punch.

The poles are drop forgings which

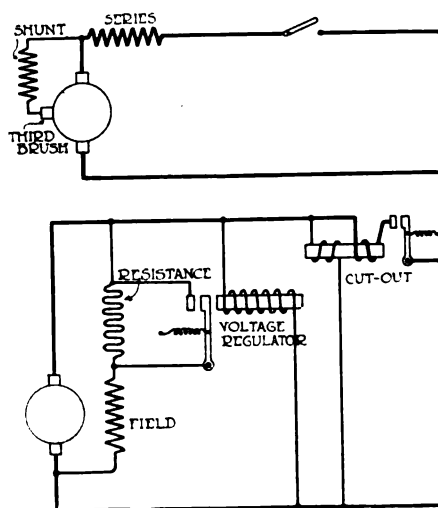


Fig. 6—Above—Diagram of connections of constant current generator, showing the third brush principle of regulation. Below—Diagram of voltage regulated generator, showing resistance which is alternately cut in and out of the field circuit

require only slight grinding to true up. This is done by clamping 24 at a time on a mandrel which is inserted in an automatic grinder. The field coils are former wound and are assembled in complete sets, Fig. 5. After all holes have been drilled in the shell a set of windings is taken, four poles inserted and the whole then slid inside the shell. The assembly is then placed over an expanding mandrel which forces the poles tightly against the inner machined surfaces of the shell, and the screws are inserted and tightened up.

When complete all units are tested for grounds and shorts in the fields, commutator and armature windings. Motors are then given a long free run at a very high speed, after which comes a second test for possible shorts. Finally motors are taken at random from the output and given brake tests. Generators are first given a test run of half an hour, in which all regulator and brush adjustments are made. This is followed by a long run, each generator with individual battery and lights exactly as on the car, the speed being frequently changed over a wide range.

You

have not voted yet. Motor World wants your vote on this question. With your vote send a letter setting forth your reasons for choosing the particular month you favor.

Remember

This is a vote for the month in which to hold your **LOCAL SHOW**—not the National events in New York and Chicago.

Vote Here—Tear Out—Mail

Motor World, 239 West 39th St., New York

I am in favor of holding the annual show in the month checked.

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

SEPTEMBER

OCTOBER

NOVEMBER

DECEMBER

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

JANUARY

FEBRUARY

MARCH

APRIL

Signed

Position

Company

Address

Dealer's Legal Status

Provisions in Lien Laws of Different States Are Not the Same and Cover Various Points—Meaning of the Provisions Made Plain

By George F. Kaiser

Among the recent enactments of the various state legislatures, is the New Jersey act entitled "An Act for the Better Protection of Garage Keepers and Automobile Repairmen," which is Chapter 312 of the Laws of 1915 (New Jersey). Under this law garagemen and repairmen, etc., may detain vehicles in their possession against which they have charges for storage, repairs, gasoline, accessories, etc., until they are paid, and it is further provided that they shall not lose their liens if the motor cars be removed from their possession, but may re-seize them wherever they may be found in any part of New Jersey.

The part of this act providing for the sale of the detained cars allows them to be sold at public auction after 30 days, if the sale is first advertised in a paper where the garage or repairshop is located, and five days' notice is set up in five of the most public places in the city, township, etc.

Like other lien laws, a provision is made that out of the proceeds of the sale, the lien shall first be paid, then the expenses of the sale, and lastly the balance shall be returned to the owner.

Defines Garage Keeper

The new Michigan lien law contains a good definition of the words "Garage Keeper," providing that:

"Whenever in the act is used the term 'Garage Keeper' it shall be construed to include all persons who for hire or reward publicly offer to store, maintain, keep and repair automobiles and other motor-propelled vehicles, and to furnish accessories and supplies for automobiles or other motor-propelled vehicles for the transportation of persons or merchandise upon and over the public highways."

This new lien law contains a clause that before Michigan garagemen can avail themselves of its benefits, they must comply with all laws and ordinances of cities and municipalities during the time covered in their claim.

Section I of this act allows garage keepers who, under an express or implied contract, furnish labor, materials or supplies, a lien on automobiles, etc., stored, maintained and supplied or repaired or furnished with gasoline, elec-

IT has been said before that the problems of the law often are knotty ones and the ways of the courts are devious.

It is the object of this department to make plain to the lay mind the intricacies of legal decisions which directly affect the dealer.

But a more important object is to render assistance to those who may need it in solving their individual legal problems.

The Legal Department is always willing and anxious to answer any and all questions which may come to it.

To receive an intelligent answer it is absolutely necessary that copies of all documents, contracts, legal papers, etc., involved in the case be forwarded with the question.

Such questions will be answered quickly—in many cases directly by mail—and there is no charge.

tric current and accessories when these things have been at the request or with the consent of the owner.

Under this lien law the vehicle may be detained any time within ninety days after the last item of work or material was furnished.

Section II provides that the dealer may advertise and sell the automobile held by him if he is not paid within ninety days after a claim of lien has been served with an itemized statement of his account. The sale is to be chattel mortgage sales, and the dealer is allowed to bid in the car but must retain the surplus, after the lien and expenses have been paid, to the owner.

Must File the Lien

The new Indiana lien law, passed at the last session of the Indiana legislature, being Chapter 156 of the Laws of 1915 (Indiana), provides:

"Every person, firm or corporation or others engaged in storing or furnishing supplies for, or repairing an automobile, or truck, or motor bicycle, or every person, firm or corporation or

others maintaining automobile garages shall have a lien on such automobiles, or motor trucks, or motor bicycles stored, for storage charges or charges for keeping any such automobile, or motor truck, or motor bicycle or for furnishing supplies for or repairs done on such automobile, or motor truck, or motor bicycle."

In order for the dealer to avail himself of these privileges, he must file a lien in the office of the recorder of the county where the work was done within 60 days after the last item of work was done or material was furnished, which notice must set forth the amount claimed and describe the vehicle. The lien must be foreclosed in the circuit court of the county where the vehicle is located, by filing a complaint within one year from the owner's refusal to pay the bill.

Contract Must Have a Delivery Schedule

Where Schedule Was Mentioned But Not Attached, Court Held Contract Unenforceable

A South Dakota decision holding that when a sales contract between a dealer and a sub-dealer in automobiles provides that the latter shall buy thirty new motor cars and accept delivery according to an attached schedule, and no schedule is attached, it is incomplete on its face and unenforceable.

An agreement was entered into between a dealer and a sub-dealer, providing for the purchase of thirty motor cars by the latter. The subdealer made a deposit of \$500 and ordered and received six automobiles under the agreement. Thereafter he brought an action to recover the \$500 deposit. The dealer answered and counterclaimed, claiming \$1,920 damages by reason of the failure of the subdealer to purchase the remaining twenty-four of the thirty automobiles ordered. The subdealer in reply to this set forth that he had had the same contract for the two years previous; that in each of them the "attached schedule" provided that he would only be required to take as many automobiles as he could sell to the trade, and that it was agreed that the present contract should be the same.

In the court's decision it was held that the subdealer was entitled to recover back the \$500 deposit, less \$77.75 due the dealer for repairs and supplies. When the dealer appealed from the judgment the court held that as the schedule which the contract provided was missing, the agreement was incomplete on its face and therefore could not be enforced as to the remaining twenty-four cars, because they had not been tendered to the subdealer.

Say What You Mean Despite Added Argument

Tommy Let a Lady Misunderstand Because He Was Weak and Got Himself Into a Mighty Lot of Trouble

By Ray W. Sherman

"TWO O'CLOCK? All right!" Tommy Trumbull hung up the receiver. To himself he said: "Gee!" He looked around nervously and half scared as if he had to hide from something or somebody and didn't know just how to go about it.

Reilly was busy at his desk and wasn't paying much attention to Tommy, so the youthful salesman, after a few furtive looks, made believe he too was busy. But he wasn't. He was just thinking—and thinking hard.

Finally he plucked up courage and announced to the boss: "Mrs. Davis is coming down here at two o'clock to see you."

"To see me?" questioned the dealer. He knew of Mrs. Davis as a prospect Tommy had been chasing for some time and who was supposed to be as good as sold. Also, Tommy was credited with having put the trade through in good shape without any chance of a loss.

"What does she want to see me for?"

"She wants to talk with you about the trade on her car."

"What's the matter with her and her car?"

That Mysterious \$25

Tommy courageously turned around in his chair, put one foot over the other knee, and explained: "She thinks we ought to allow her more on her car than I said we would."

"What makes her think that? And does she think I'll allow her more than you would?"

"Darned if I know," added Tommy, confidently. "I'll tell you just what there is to it. She claims I told her we would give her four twenty-five for it. I told her we would allow four hundred and no more. But she claims I said I'd give four twenty-five so she's coming down to see you."

"What'll I tell her?" asked Reilly.

"I don't think we ought to allow more than four hundred for it," parried Tommy.

"Well——" Reilly said, and stopped. "Let's see her card from the file," he added.

Tommy produced the card and on it was a notation of all the follow-up and the final notation that her used car was to be taken in trade at \$400.

"Says four hundred here," was the dealer's comment.

"Certainly it does!" triumphantly asserted Tommy.

"Well, where does this twenty-five dollars business get into the deal?" Reilly looked squarely at Tommy.

"She says—she claims," began Tommy, "that I said we would allow her twenty-five dollars more for it if she would turn it in right away so we could have as much chance as possible to sell it. I had told her, it is true, that she ought to make the deal as quickly as possible so we could sell the car, for if she held off too long the used car would keep getting less in value."

What Kind of a "No"?

"What did you say to that?"

"I told her no!" declared Tommy.

Reilly pondered. "Tommy," he said at length, "who made this twenty-five dollars proposition? You or she?"

"She did."

"And did you come right out so there could be no misunderstanding and say No! Just like that: No!" And here Reilly emitted a firm and well-rounded No!

"I—ah—I—"

"Did you or didn't you?"

"Why—well—maybe I didn't yell it right out at her like that, but I certainly never told her we would allow her the twenty-five."

"Tommy, my boy," Reilly got up, walked over to the young man and laid his hand on the youthful salesman's shoulder. "I'm afraid you have yielded to temptation. I'm afraid you have sort of slipped one over on Mrs. Davis—and on me, too."

"I don't see how!"

Insidious Misunderstandings

"Maybe I'm misjudging you, son, but to me it looks as if Mrs. Davis made this twenty-five dollars proposal and you didn't come right out and give her to understand that it was not acceptable. You sort of let her think you would give her the extra allowance. At the time she suggested it you probably were in the midst of closing up the sale and you disliked very much to have anything enter into the situation and possibly upset the parade, so you let the thing slide, as it were, and it ended by her believing you had assented to the proposal. Now she insists that you came right out and said Yes."

"Well——" Tommy grudgingly ad-

mitted. "Well, it may have been that way, but I never intended to allow her the extra money."

"Bad business, boy! Bad business!" said Reilly, and, the matter having been cleared up, he smiled as he said it. He smiled to make Tommy feel more comfortable about as much as for any other reason.

"It's a great temptation very often," the dealer continued, "to let a customer misunderstand things, provided an assertion of your true position is going to mean added argument. But don't you see how much better it would have been to have it out right then and there instead of letting it run into a protracted dispute? You may lose the sale entirely now."

"Some dealers and salesmen are always having misunderstandings with their customers, all of which works out badly in the end for the dealer. There is no good reason why everything between a dealer and his customers should not be well understood. It makes the customers better satisfied with everything and helps build business and goodwill."

It Was Tommy's Mess

"On this same little old question of service there is as much misunderstanding as on anything I know of. Some of my dealer friends tell me it is because of promises and impressions given to the buyer by the salesman in order to push along the sale. The salesmen want their commission and the service isn't going to affect the commission, so they tell what a good fellow the dealer will be after the car is sold and what fine service he will give."

"I presume that very often the salesman doesn't come right out and promise excessive service, but lets the customer gather a wrong impression and does nothing to dispel it. It is far better to make a clear and definite explanation of service and let it be understood just what will be done—and what will not be done. Now when Mrs. Davis comes in——"

"I won't be here," interrupted Tommy.

"You certainly will be here!" asserted Reilly. "You're a fine one! You started this mess! And now you've got to help me clean it up. Or, rather, I'll try to help you clean it up somehow. It's your mess!"

WIDE-AWAKE MERCHANDISING

MAKES SALESMEN EACH A SUBDEALER

**And Each Has a Quota to Sell
—Bonus to "Plus" Men**

Every salesman in the employ of the Gray Motors Co., Studebaker dealer in Minneapolis, is listed as a subdealer. He is allotted a certain number of cars to sell every month, and if he falls far below his quota or if he slumps two months in succession, something is assumed to be wrong and the proprietor and manager, O. H. Gray, investigates. This is the allotment of a 50-car man:

July	8	November ..2	March	4
August	7	December ..2	April	6
September ..6		January	May	3
October	5	February	June	2

And everybody has an allotment. The shop superintendent sells cars; the used car man sells new cars; everyone who comes in contact with possible buyers is listed as a subdealer.

Team Work Promoted

An added feature is this: Every man who exceeds his quota is a plus man and if he falls below he is a minus man. Every plus man gets \$5 a car for every car sold above his quota by a plus man. Thus, if Smith, Jones and Brown have gone above their quotas and if Jones sells a car, each of the three gets a \$5 bonus for that car. The total bonuses on that sale are \$15. The man who remains a minus man until the end of the year is charged \$15 for every car he is minus. If he falls 5 cars short it costs him \$75. Few fall far short.

Salary to Get Good Men

The \$5 plus-man bonus promotes team work, for each man is anxious to have as many plus men in the group as possible. Therefore, the salesmen help each other and are amply rewarded therefor. All men work on a salary, because, says Gray, otherwise it is impossible to keep good men during the slower winter months.

Also, the dates on which prospects are to be seen are recorded and the cards automatically come up on those dates. The salesman has two days to get results

This ad. in a story in the September 15 issue of Motor World gave Snow an idea

He took the part of the ad. he could use and it brought results

or report and set the card ahead again. If he doesn't he must explain what happened. These explanations are generally made in salesmen's meetings, where all sorts of things are threshed out.

MAKING THE TRADE PAPER BRING RESULTS

Making the trade paper he reads of practical value to him is the policy of A. E. Snow, of the Tri-State Auto Co., Inter-State distributor, Minneapolis. In the September 15 number of Motor World, Snow read the story of the used car sale staged on a circus lot in Utica, N. Y. One of the advertisements appealed to him as good used car copy, so he copied it. The result was a dozen or more inquiries within a few hours. Snow's ad occupied small space in a classified column.

IDEAS IN BIG CITIES

Dealers in small towns should make it a point to visit the larger cities every once in a while to get ideas from the larger dealers. This applies with equal force to sellers of both cars and accessories. The various showrooms and accessory stores should be examined closely and anything that is found good should be copied. In this way the small town dealer can easily keep abreast of his brothers in the big cities.

BIG BUSINESS IN OLD FORD BODIES

Old Bodies in Trade for Deliveries Find Ready Sale

The Road Man knows a dealer, in a small town, that has been doing a big business in delivery bodies for Ford cars. In every case he makes a small allowance for the old Ford body.

Contrary to general belief, there is a ready local market for these bodies. One man might bring in a Ford with a badly dented rear panel. It was cheaper to put on a new body than to repair the old one.

Another man had a 1912 car, the mechanical condition of which was so good that he hated to trade the machine in for a new one, for he knew he would not get as much as it was worth to him, yet his car looked out of date. He bought one of these bodies and was more than satisfied.

A used Ford runabout will be taken in trade. In this section a Ford with runabout body is very hard to sell. One of the touring bodies in stock is put in place and the car brings \$75 more, leaving \$65 profit, as the body probably did not cost him over \$10.

WHAT SERVICE REALLY MEANS

Tell This to a Man Who Wants You to Cut Your Price

A certain man bought a car from a private-house dealer in a little country town. That was last year—the man that sold the car is no longer in the business but is making a living by some other fly-by-night scheme. This particular victim of the curbstoner hesitated for a long time between a car sold by a legitimate dealer for \$1,050, and a car offered by the curbstoner for \$900. This machine also listed at \$1,050. Finally the latter car was purchased and the owner prided himself on the bargain he had obtained through his shrewdness. Apparently he had never learned the principle that a low price usually means a low value; that if an article is marked down there is probably a reason for it, and therefore the buyer should beware.

During the next few months he had various minor troubles which would have been remedied by a legitimate dealer for nothing, but the curbstoner knew little about cars, had no shop, and therefore the owner had to take his car to a garage.

Little Troubles Grow Fast

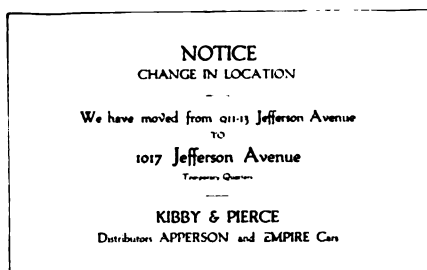
Furthermore the car never did run properly. The carbureter was out of adjustment from the start, the magneto and battery soon developed trouble because they needed inspection, which was never given them for the reason that the curbstoner knew nothing about the car, and since he had already given his profit away, could not afford to hire someone to do it for him. Consequently the best that was in the car never was obtained, and the owner soon got to the point where he was so disgusted that he wanted to sell it.

However, he soon found that he could not get nearly as much as the car was worth for the simple reason that no one in his town would take a chance on the machine except at a big discount, for the reason that there was always the possibility of the machine being laid up for a couple of weeks or a month while new parts were being obtained. Everybody recalled his experience when one of his differential gear pinions gave way due to improper hardening.

Finally he went to the legitimate dealer and traded the car in for a new one at a very low price. He knows now that when he bought his \$1,050 car last year from the curbstoner that he not only did not receive \$1,050 value but he did not even get \$900 value. Frankly, he admits that \$700 would be nearer the truth. He lost \$200 cash and had a sea-

son of unsatisfactory motoring to teach him the folly of buying a car from a peddler.

WHEN YOU MOVE—



Send a card and let your customers know about it. Here is an excellent example and an inexpensive one

PLUG THE SMALL LEAKS THAT MEAN BIG LOSSES

Plugging up the small leaks often means the difference between profit and loss in the garage business. A little gasoline loss, a little time wasted by each repairman, a few articles missing from the accessory stock, time given away in repairing or adjusting a car, a lump of grease here and a cupful of kerosene there, soon results in the loss of many dollars. It is the multitude of small losses that often kill a good garage business.

The remedy is, to accurately check all gasoline sales, likewise all accessory sales; to see that no time is idled away in the shop, to make sure that no grease is given away in small amounts to favored customers. These customers should buy a pound or 5-pound can and keep it in the car. The same applies to waste and a host of other things that many motorists are in the habit of grafting just because they only use a small amount at a time and the individual cost is small.

EASY START WORTH \$25

It is worth to the dealer from \$25 to \$100 to have a used car start easily when it is being demonstrated, states Terrence Connolly, sales manager for the Frederick E. Murphy Automobile Co., Minneapolis, Paige and Mitchell dealer. If the car doesn't start at the first flip of the crank it had depreciated in the eyes of the would-be buyer, and the depreciation is in accordance with the starting difficulty. Wherefore, attention is given to starting.

Letters Bring Spring Sales

During the winter months the Gray Motors Co., Studebaker dealer in Minneapolis, puts in the cold days to advantage by following up prospects and lining them up for spring sales. Letters are written in great number and results accrue. Each sales letter, however, is made a personal letter and much thought is put into it.

BUSINESS FOLLOWS THIS MAN'S ROUTE

He Drives His Cars Home and Picks up Trade

Having a dealer drive many of his cars to his home from the distributor's salesroom helps greatly in promoting the sale of the car, according to the experience of B. R. Kelly, manager of the La Crosse Auto Co., Minneapolis. The company handles the Imperial and Dort, and a look at Kelly's dealer organization map proves his theory.

One of his first dealers was in Minot, N. D. This point is at the far end of a strip of territory running northwest from Minneapolis. Another of the first dealers was in the territory about Bismarck, which is the end of a strip running west from Minneapolis. The Minot man drives many of his cars home; the other man generally ships them. The result is that dealer inquiries have come in in number from the territory between Minneapolis and Minot, from men who have seen the cars en route, while few have been received from the other section. All along the route between Minneapolis and Minot are dealer pins on the map, while the other section is quite unpinned.

DISPLAY HELPS FOR THE DEALER

There are many devices which are supplied by accessory manufacturers to their dealers for the better display of merchandise. One is illustrated herewith. Manufacturers who supply these devices are urged to forward photographs or sketches of them.



Attractive posters well used often will assist in turning a sale. Illustrated herewith is a new poster that is just being sent out by The Motometer Co. It is handsomely lithographed and it gives convincing sales arguments without flowery language and in such a way that they can be remembered

Eight Counties of California To Get \$70,000,000 in Trade

Accessories Will Be Half This Amount and Cars the Remainder—Every Dealer Looks for Big Sales Increase—Show Draws Well

LOS ANGELES, September 30 — Recognized as one of the greatest automobile distributing centers in the United States, Los Angeles offers a rich field for the motor car and accessory dealer. The eight southernmost counties of California, all of which are tributary to the port of Los Angeles, spent more than \$20,000,000 for new cars last season. These eight counties, known as the Southern California territory in the geography of the automobile industry, will turn something like \$35,000,000 into the motor car industry during the 1916 season, according to the most conservative estimates of dealers, bankers and public officials.

The total sales of tires, accessories and parts in the Southern California territory is estimated at another \$35,000,000. Figuring at \$250 per year for upkeep, including supplies, tires and gasoline, the 70,000 machines registered in Southern California will give a total expenditure of \$17,500,000. This does not include the garage storage fees, insurance, drivers' salaries nor take in the great amount spent in the territory annually for rebuilding and painting.

Los Angeles a Supply Center

Considering the fact that motor cars are used throughout the entire year in California and greater mileage is recorded than any other place in America on account of the excellent roads and commercial demands upon the motor car, \$250 per year is a very low estimate. The thousands of cars from outside the territory which annually visit in and around Los Angeles further swell the totals in the accessory column.

As a distributing point Los Angeles does not supply the Southern California territory alone. The motor car dealers of Los Angeles supply Arizona as well. Many dealers and factory branches located in Los Angeles supply all of California, Arizona, Nevada and in some cases the entire Pacific Coast. For this reason, if for no other, the city is a very desirable center for annual automobile shows.

The eighth annual Los Angeles automobile show drew a total attendance of 35,000 owners and prospective owners. There were 6,000 passes issued to dealers, subagents, accessory men and members of the automobile and allied industries.

While many of the dealers of Los Angeles did not enter the show, the motor salon produced great retail results in Los Angeles and stimulated interest in motor cars throughout the entire territory served by the dealers and factory branches located in the city.

Listed 300 Prospects

But a small percentage of the outside representatives of the lines represented attended the show, although enough did attend to make the show a success from the factory standpoint. The feature of the show was the great demand for cars. As many as five high-grade cars were sold in an hour off the floor by single firms. Pressure was brought to bear in many cases on the motor car men by purchasers who wanted to take their cars out of the show; but on account of the scarcity of cars on the Pacific Coast and the great demand no car was allowed to leave the floor. When a special model was sold, a card was placed on the machine, bearing the name of the owner and stating that it was being exhibited by permission of the owner.

One firm secured a list of 300 prospective buyers who are to receive demonstrations at the close of the show in the order in which their names appear on the firm's register. Never has the demand been as great for cars in Southern California and Arizona as it is at the beginning of the 1916 season, and it is more a question of securing cars than getting orders.

Sold All His Show Cars

Walter M. Brown, California and Arizona distributor of the Stutz, said on the third day of the show that he was sold out on every Stutz model and would not be able to make deliveries for at least 60 days. On the opening night of the show, Brown secured orders for two of his show models and the third day an owner's name was placed on the third car in the exhibit. With the exception of a single demonstrator and Brown's private touring car, he did not have a solitary car left on the floor at his salesroom.

Last year Brown placed 175 machines in his territory and his allotment for the 1915 season is 250. He says that if the pace keeps up and he can secure the cars he will place about 400 cars this

season. In all his territory Brown has but four subagents.

In Southern California alone, the Winton Co. placed 200 cars last season, and Manager H. L. Ownesney is figuring on 350 cars for the territory in 1916. Manager Merrill of the Los Angeles branch, sold 10 cars the first four days of the Los Angeles show. The Winton branch has but six agents in Southern California.

Wm. R. Ruess has 16 agents in Southern California for the Mitchell line. During the last half of the 1915 season Ruess sold 91 machines and his allotment for the present season is 250.

The Irving Motor Car Co., with the Southern California agency for the Enger, was not in the field last season, but the company intends to put 100 cars in the territory this season.

The Mercer agency in Los Angeles is Mercer headquarters for the entire Pacific slope, taking in all the territory west of Denver, Col., with two branches and 14 agents. Last season this concern put 120 cars in the territory and 200 is the figure set for the present season, although George R. Bentel claims that the mark will be bettered if he can get the cars.

Good Business Getting Better

The English Motor Car Co., distributors for the King, has all of Southern California south of Bakersfield, with 16 agents. Handling the car but a part of the 1915 season, this company put out something like 150 cars, and the lowest estimate of Manager Clarence English for the 1916 season is 300 cars. The progress of the King in Southern California is typical of the field offered. Doubling its business from month to month until the King was firmly established and keeping pace with the most popular cars on the market here, the English Motor Car Co. met with success in handling the King from the very start.

The Apperson maintains a branch in Los Angeles which controls California, Arizona and Nevada. In seven months of the 1915 season the branch put out 165 cars. The agencies in the great territory now number 75 and Manager Harris Hanshue expects to put out not less than 400 machines this season.

Ralph C. Hamlin, with the Franklin and Scripps-Booth, has all of Southern California for the Scripps-Booth, which was taken over but a few weeks ago. He expects to place 200 of these cars the first year. The Franklin territory extends from San Luis Obispo south to the San Diego and Imperial county lines. In this limited territory 131 Franklins were placed last season and more than 150 will be the total this season according to the veteran dealer.

Earle C. Anthony, Inc., has recently taken over the Reo for all of California and the allotment for the season is 1,500

cars. Anthony also has the Packard from Bakersfield to the Mexican line. Last year there were 90 Packard cars and 40 trucks placed in the territory, while this year 200 cars have been contracted for with 50 trucks as the minimum. Including the Reo agents, there are 60 subdealers on the Anthony list. At the Los Angeles show the only Packard Twin-Six in California was on exhibition. This car has been used for a demonstrator, being shipped back and forth between the Southern California and Northern California agencies. With the single demonstrator the Earle C. Anthony, Inc., has secured orders and deposits on 100 cars, half the 1916 allotment.

Buxton's Sales Booming

Lynn C. Buxton, with Southern California and Arizona for the Moon and Lexington, has 17 sub-dealers. Last season 118 cars were placed in the territory and Buxton's 1916 contracts call for 250 machines.

Hawley, King & Co., Los Angeles motor car branch, control Southern California and Arizona for the Oakland and Chase truck, with Southern California south of San Luis Obispo for the National. This concern has 25 subagents and last year put 250 cars into the territory. Under the favorable conditions of the present season the lowest estimate of the company's officials is 650 or 700 cars and trucks.

The Cole Motor Car Co. is a factory branch which controls Southern California only. With 14 agents 160 Coles were placed in the territory last season and the mark for 1916 is 225, set by Manager Ed. F. Harris.

The Pacific Kissel Kar branch, located at Los Angeles, has Southern California and Arizona for the Kissel, Federal and Kissel truck and Southern California for the Briscoe. This company placed almost 400 cars last year and an increase of 50 per cent is predicted for the 1916 season by O. B. Henderson, vice-president of the concern. This company also sold something like 1,200 Fords last year in the city of Los Angeles alone, handling the line through a special contract with the Ford Motor Co.'s Los Angeles branch. In the territory controlled by the Pacific Kissel Kar branch there are approximately 75 agents working.

1,400 Cadillacs This Year

Don Lee has the Cadillac for the entire state. The total sales for last season were 1,050 cars from January 1 to July 1. This year there are to be 1,400 Cadillacs put into the territory, and judging from the present rate of sales, the allotment will fall short. Don Lee has six branches and 45 agents in his territory.

The Carlton-Faulkner-Bowles Co. has the Fiat, Jeffery, McFarlan and Marmon

lines from Fresno, Cal., to the southern border of Arizona. This concern has practically no outside representation, selling direct and having taken over the Marmon and Jeffery but recently. Last season the company put out 150 Fiats, Jefferys and McFarlans. This figure is to be increased to 350 in 1916, with from 30 to 50 Marmons for the territory.

Smith Brothers, controlling the Paige, Premier and Peerless, are to put out 100 Premiers, 50 Peerless models, exclusive of trucks, of which they sold 38 last season, and 300 Paige cars. Since taking the Paige two weeks ago the company has sold 11 Paiges. The line is handled throughout Los Angeles county only. Last season the totals were 81 Premiers and 29 Peerless cars in Southern California south of Bakersfield.

Harold L. Arnold has the Hudson in Southern California and Arizona and the Dodge in San Luis Obispo, Santa Barbara, Orange and Los Angeles counties only. Last year he placed 240 Hudsons and 561 Dodges in a short year in Los Angeles county alone. Arnold's agents number 12, handling the Hudson, and 42 now on the Dodge. The business of this company alone in new cars this season will be something like \$2,000,000.

Maxwell Doubles Sales

The Lord Motor Car Co. has the Maxwell in Southern California south of Fresno and all of Arizona. There are 60 subagents for the Maxwell in the territory. Last year the Lord company put out 1,300 cars and this year the business is to total 2,500 1916 machines.

The Beardsley Electric Co., making the Beardsley electric in Los Angeles, is supplying the Pacific Coast trade only at this time. A number of cars have been shipped to Salt Lake, but the main business of the company is in and around Los Angeles. Last year the company built and marketed 100 electrics. With the completion of the new factory and more equipment the output of the factory is to be doubled this season.

Los Angeles and Southern California finds ready means for continuing to lead in the per capita purchases of motor cars and trucks. The products of the Southern California counties this year total \$244,583,311. In producing this great wealth the motor car plays an important part. Petroleum pours approximately \$50,000,000 into the Southern California treasury this year and this industry alone purchases almost \$5,000,000 worth of automobiles and trucks this season. Southern California reaps a \$30,000,000 annual harvest from the film industry and the motion picture concerns of Los Angeles and vicinity have more than \$2,000,000 invested in machines.

In the bean country the growers are heavy buyers of cars and trucks. The

bean industry means \$6,573,750 to Southern California this season, or 1,665,000 bags. There are 160,000 tons of sugar beets this year, which mean \$16,000,000 in the products totals.

While the Los Angeles show was held earlier this year than ever before, the dealers exhibiting are all unanimously in favor of early shows in Southern California. With one or two exceptions all the new models were on display. There is no reason for the show being postponed until late in the fall. Two years ago one of the greatest shows ever held in the west was staged in Los Angeles in February, but at this time the new models came out later and it was necessary to wait for the new arrivals.

Show Time Is Early Fall

According to the most prominent Los Angeles dealers, the early fall is the time for the successful show in that territory. Open cars, roadsters, speedsters and touring cars are sold and used there the year through, and at the show it is possible to take orders for the closed cars and electrics used for later delivery. The Los Angeles shows have always been more for the owners and interested motorist than for the dealer on account of the great territory represented.

It is a fact that more dealers and subdealers in the territory served by Los Angeles attend the eastern shows than the Los Angeles shows. However, the great retail attendance makes the shows well worth while in Los Angeles, and when the new models embody such advances in motor car construction as the models put out this year, there is every argument in favor of an early fall show.

Early Show Unanimous

To a man, every dealer exhibiting and the greater number who will exhibit in the Broadway Automobile and Flower Show to be held under the direction of the Motor Car Dealers Association, October 23 to 30, are in favor of early shows for California, provided the new models come out early, as they did this season.

Apperson Motor Car Co., Apperson; M. S. Bulkley & Co., Autocar; Cole Motor Co., Cole; Aston Motor Co., Pullman; Smith Bros., Paige, Peerless, Premier; Winton Co., Winton.

Pacific Kissel Kar Branch, Kissel, Briscoe; California Electric Garage, Detroit electric; Beardsley Electric Co., Beardsley electric; Harold L. Arnold, Dodge, Hudson; Lynn C. Buxton, Moon, Lexington; Simplex-Mercer Pacific Coast Agency, Mercer.

Ralph C. Hamlin, Franklin, Scripps-Booth; Earle C. Anthony, Inc., Packard, Reo; Don Lee, Cadillac; Walter M. Brown Co., Stutz; Hawley, King & Co., National, Oakland; English Motor Car Co., King.

Carlton-Faulkner-Bowles Co., Fiat, McFarlan, Marmon, Jeffery; Chandler Motor Car Co. of California, Chandler; Pathfinder Los Angeles Agency, Pathfinder; Irving Motor Car Co., Enger; Wm. R. Ruess, Mitchell; Moline Automobile Co., Moline, Knight.

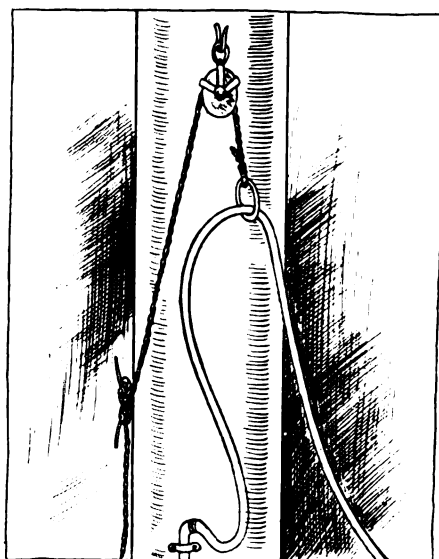
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** Road Man

Rack for Stock

(No. 255)

A good rack for carrying shafts and similar parts can be quickly made at minimum expense by means of V-shaped boards nailed on the top of the regular stock bins. The construction is clearly shown, and the V-shaped pieces front and back are staggered so that shafts on adjacent sides will not interfere.—Wm. Sickinger, Morgan, & Williams, Warren, O.



(No. 254)

Keeping the air hose off the floor

Protecting Air Hose

(No. 254)

When the air hose is allowed to lie on the floor it is trampled on, cars run over it, and it becomes soaked with oil and grease. As a result its life is considerably shortened. A simple method of preventing this trouble is suggested in the accompanying drawing.

Distilling Water

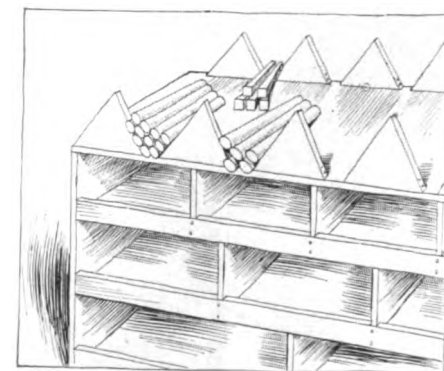
(No. 256)

By the use of a simple home-made still, distilled water can be obtained for merely the cost of the gas used for heating the water—a considerable saving when it is bought at 20 cents a gallon.

Probably the average garage is called upon to supply 100 cars per month with distilled water for the starting and lighting battery, and figuring that each takes a pint, the total monthly consumption is over a dozen gallons, and the cost of \$2.40.

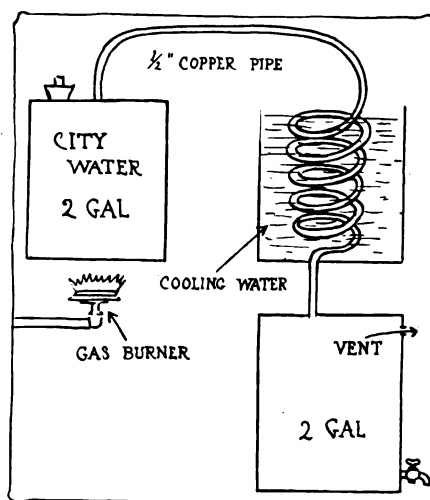
Herewith is illustrated a simple form of still consisting of three vessels, one for ordinary water, one for condensing steam, and one for holding the distilled water. Water is poured into the first vessel through the filler opening and then the opening is closed. A gas burner under this vessel soon brings the water to the boiling point and the steam generated is carried over through the coils of pipe where condensation occurs. From here the water flows by gravity into the vessel in which the distilled water is collected. The condenser coil should be surrounded by comparatively cool water to aid in the condensation. Six or eight feet of tubing $\frac{3}{8}$ inch in diameter should be sufficient for the coil. If the distilled water vessel is solidly connected to the lower end of the condenser tubing a vent should be placed in the side of the vessel near the top to allow air to flow in as the water is drawn off through the faucet at the bottom. A gauge glass will be found a convenience, as it shows the amount of water in the vessel. A glass bottle may be substituted for this vessel.

The material used in making the still should be thin sheet copper, or tinned or galvanized sheet iron. For 1-, 2- or 3-gallon sizes make all three vessels 5 x 10, $6\frac{1}{2}$ x 13 or 8 x 16 inches.



(No. 255)

Rack for bar stock and shafts



(No. 256)

Home-made water distilling apparatus

Bucket Improvement

(No. 257)

The life of buckets and cans about the garage can be greatly prolonged by lining the bottom with a $\frac{3}{8}$ inch of concrete. This prevents the leaking of the pail as a result of the wear and abuse that the bottom usually is subjected to.—The Autocar.

Two-tier Storage

(No. 258)

By double-decking cars the Frederick E. Murphy Automobile Co., Minneapolis, Paige and Mitchell dealer, is able to get 500 cars on a floor that has space for but half that number. The double-decking consists of plank trackage built high and wide enough to clear the lower row of cars. Cars are run from the elevator onto a carrier which is on small iron wheels and which runs up level with the elevated structure.—Frederick E. Murphy Automobile Co. Minneapolis.

Loud 'Phone Bells

(No. 259)

It is not necessary that any one remain in the office of the repairshop of the Frederick E. Murphy Automobile Co., Minneapolis. The telephone bells are large 4-inch pairs of bells overhead in the center of the shop. They can be heard by any one in the shop and are immediately answered. There being two telephone systems in the city, there are two different-sounding sets of bells.—Frederick E. Murphy Automobile Co., Minneapolis.

Drip Pan Substitute

(No. 260)

In place of a drip pan which is always dirty, looks badly, leaks, becomes cracked and misshaped, is always in the way, a small bed of sand about 2 x 5 feet may be placed under each car. These should be kept neatly brushed up and the sand should be about 1 inch deep. The sand is of a dustless hard kind and is not blown by the wind, although an open cutout will scatter it about. The sand piles are trimmed every day.—Pence Automobile Co., Minneapolis, Minn.

Timber-built Crane

(No. 262)

A very substantial crane capable of lifting the complete car if need be can be made from 4 x 6-inch joists. The crane is mounted on large casters and the car is placed between its supporting members, after which the lifting is done by a chain hoist. The dimensions and construction are clearly shown by the

accompanying diagram.—Albert Elton, Elton Auto & Repair Co., Youngstown, O.

Handling Small Screws

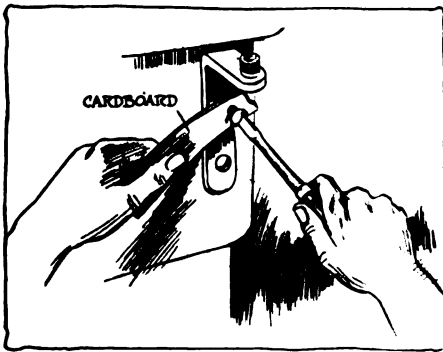
(No. 261)

In replacing a small screw where cramped quarters make it difficult to hold, a strip of cardboard makes an excellent flexible holder. The screw is stuck through one end of a strip, say 4 inches by ½, and thus is held.—G. W. Johnson, Savanna, Ill.

Replacing Piston Rings

(No. 264)

A simple scheme for replacing piston rings is shown herewith. Take three pieces of an old alarm clock spring, each about 5 inches long. Bend one end in the form of a hook. Place the springs around the piston as indicated, with the hook at the top. Then the rings are put on, one at a time. To remove a ring first insert one spring where the



(No. 261)

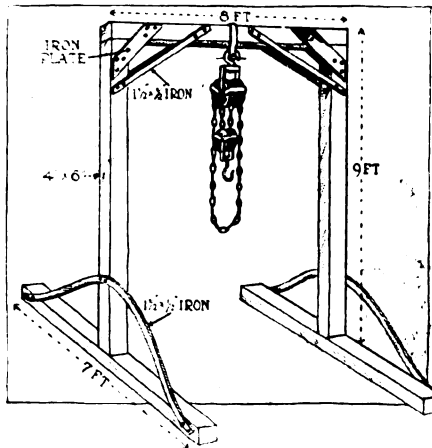
Guiding small screw with cardboard strip

ring is parted, then a second one as shown. Finally place the third spring in position at the back of the piston and then the ring may be pulled off.—John J. Stepicke, Chicago, Ill.

Shorting Spark Plugs

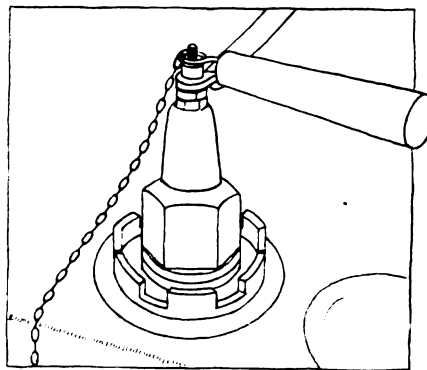
(No. 263)

Short-circuiting spark plugs can more easily be done by the chain apparatus shown than by the use of a screw driver. Any kind of chain may be used, and it is fastened to a wooden handle to insulate it.—Light Car (English) for September.



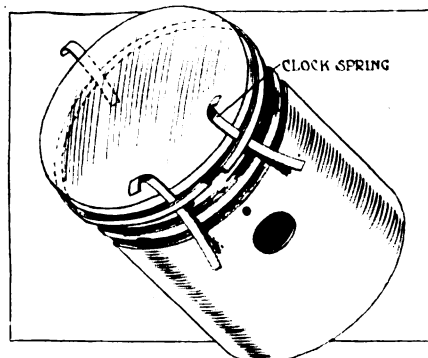
(No. 262)

Crane built of substantial timber



(No. 263)

Short-circuiting spark plug with chain



(No. 264)

Clock-spring steel for replacing rings

Elevator Safety Lock

(No. 266)

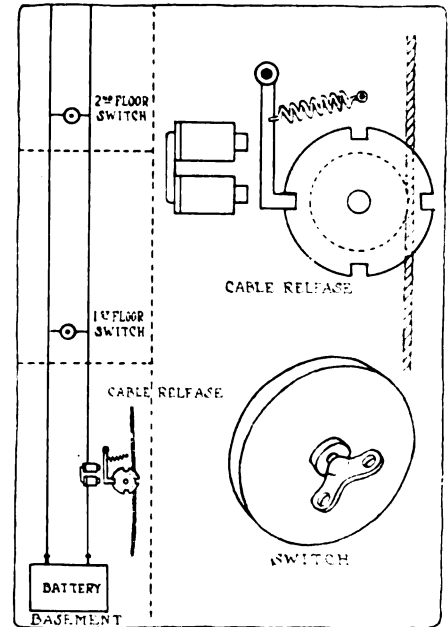
To prevent the use of the elevator by unauthorized persons the device shown was worked out. It consists of a hook which normally rests in one of the slots in the pulley around which the elevator starting cable is wound. The cable cannot be moved and consequently the elevator cannot be started until the hook is moved out of one of the slots, and there is a slot for each floor. The hook is held in position by a spring and it is pulled out by two strong electro magnets which are energized by an ordinary storage battery; there is no reason why line current might not be used just as well, providing it is direct. There is a switch at each floor, and when any one of these is closed current energizes the magnets and pulls the hook away from

the pulley. Ordinary switches are used but special keys are fitted so that only a man with a key can operate the switch.—Floyd Kinnaman and Wm. K. Knowles, Fostoria, O.

Aligning Main Bearings

(No. 265)

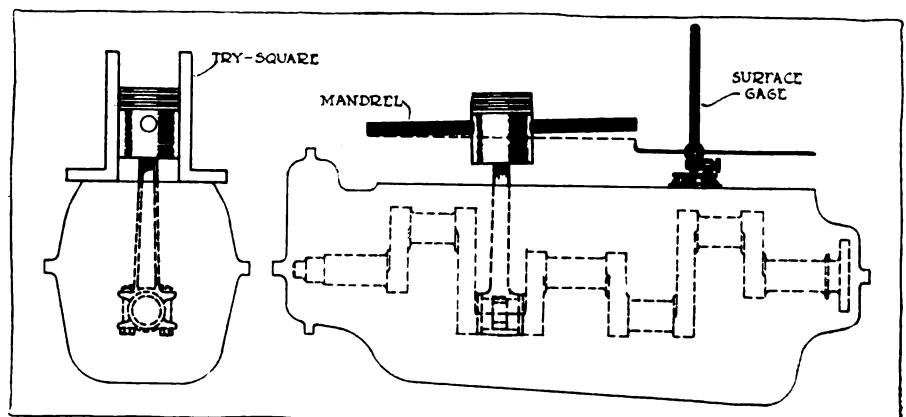
Whether the main bearings are in alignment or not can be determined by means of a surface gauge. This is an instrument which measures the distance between the top of the crankcase and each bearing, and is therefore nothing more than a caliper. It has a broad, flat base, which may be placed on the surface



(No. 266)

Electric safety lock on elevator

of the crankcase and the pointer is brought into contact with one of the bearings, then it is moved along to the other bearings to determine whether these surfaces are higher or lower. To make sure of the accuracy of this method the trueness of the crankcase surface must first be checked by a straight edge. Another method which may be used, providing the bearing boxes are in line, is to remove the bearings and caliper them. If they are all the same thickness the crankshaft must be in alignment, but if otherwise it is out of true.—G. B. Cortelyou, New York.



(No. 265)

Using mandrel, surface gauge and squares in testing bearing alignment



C. G. Hanna, Syracuse-Chalmers Motor Co., at bat in the famous ball game



T. F. Fitzpatrick, Genesee Garage, Overland dealer, in the "Utica Dip"



Walter Schiller and John W. Lee congratulate each other—for the camera

Business Deserted by Syracuse Dealers

Even Murky Weather Doesn't Spoil Fun at Trade's Annual Outing

SYRACUSE, September 30 — Old Jupiter Pluvius endeavored to get from behind the clouds last Saturday, September 24, when the Utica and Syracuse automobile dealers held their get-together outing at South Bay, N. Y., but he was unable to mar the sports scheduled for the occasion. This was an outing for dealers and their friends in central New York and the attendance was about one hundred.

At precisely 1:30 dinner was served at the Antlers Club, South Bay on Oneida Lake, which is one of the popular outing resorts of New York state and is 12 miles from Syracuse and 48 from Utica. It is easy of access to all parts of central New York.

This outing served a twofold purpose—it brought motorists from all points in central New York; the motorists are the friends and customers of the dealers and they, of course, were in on the good time. This outing brought the dealers of central New York together for the first time, and judging from the feelings of those present it will be an annual event henceforth.

In the field sport events there were about eight entries to each event. C. G. Hanna, of the Chalmers company in Syracuse, secured first prize in the Utica Dip, with T. F. Fitzpatrick, of the Overland Genesee company in Utica, taking second prize. Both these dealers were prominent in the several events, while in the ball game T. F. Fitzpatrick, of Utica, made several sensational plays. The prize winners follow:

Utica Dip—Contestant drives half way up field, stops motor, dismounts, runs to designated tub and extracts apple from water with his mouth, returns to car, starts motor and com-

pletes course still holding apple in mouth. Competitor performing feat in least time declared winner. Winner, C. G. Hanna, 35½ seconds; second, F. F. Fitzpatrick, of Utica, 51½ seconds. Prizes, first, electric hand lantern, donated by the Syracuse Auto Supply Co.; second, electric flashlight, donated by William F. Carroll, of Utica.

Rome Hoop—Contestant drives from starting point, winding in and out between eight barrels placed at intervals over field without touching any of them. Competitor accomplishing feat in least time declared winner. Ten seconds added to time for each barrel hit. Winner, H. H. Jones, of Syracuse, 40½ seconds; second, John M. Weeks, Syracuse, 42½ seconds. Prizes, first, Stewart hand horn, donated by Syracuse speedometer station; second, watch, donated by George C. Donohue, of Utica.

Oneida Potato Race for Women—Contestant sits beside driver of car and is provided with eight potatoes, to be dropped in eight tubs placed at regular intervals down the field. Cars to be kept moving. Stopping adds ten seconds to time. Lady accomplishing feat in least time declared winner. Ten seconds added for each potato which fails to remain in tub. Winner, Mrs. H. W. Smith, car driven by John M. Weeks, time, 43½ seconds; second, Mrs. C. G. Hanna, car driven by Mr. Hanna, time, 50½ seconds. Prizes, first, automobile robe, donated

by United States Rubber Co.; second, Blue Book and Blue Book Holder, donated by the Automobile Club of Utica.

Following the field events the cars were parked and a big ball game opened. Utica and Syracuse were supposed to contest for honors, but owing to his absent-mindedness, or perhaps desire to trim his friend H. W. Smith, John Lee, Syracuse Overland dealer, picked the Syracuse nine while his friend, H. W. Smith (a Syracusan) selected the Utica bunch. The Syracuse team had several Uticans while the Utica nine was captained by H. W. Smith, of Syracuse. However, it was a jolly five innings that were played.

From the crowd an umpire was picked to judge the game. One requisite for this position, according to the captains, was that said "ump" should swear that he had never witnessed a ball game before in his life. F. E. Dyer, of Syracuse, was selected.

A. A. Ledermann, president of the Utica Automobile Trade Association, and his motor friend, John Manley, were unable to "weigh in" at the 150-pound limit and were barred from contesting.



WHEN SOME OF THEM WERE NOT PLAYING—Left to right, in car: Walter Schiller, W. A. Williams, Geo. C. Donahue, secretary Utica Automobile Trade Association; F. F. Fitzpatrick, John W. Lee, Jr., J. P. Court, H. E. LeVier, H. W. Smith, Elmo Roslyn, John M. Weeks, Edw. Doyle. On runningboard: C. J. Hanna, Dr. S. F. Snow, H. J. Parrett

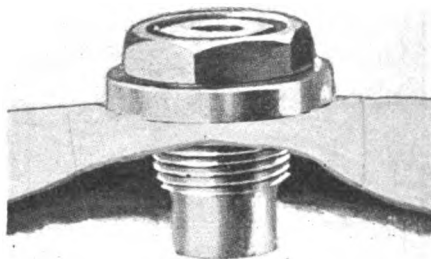


ACCESSORIES & SUPPLIES :

McNUTT SAFETY CANS

John C. Eames, Inc., 320 Broadway, New York. PRICE, tank safety plug, \$4.50; 5-gallon plug closure can, \$5; Eclipse 5-gallon can, \$6.

The feature of the McNutt safety can is the plug with which it is closed; the plug can be used separately for the tanks of small cars, including Fords, and is sold for this purpose. The plug or bung is made with a fusible plug, a safety vent and a fine wire mesh screen. When the pressure in the can rises to 10 pounds, or when the temperature rises to 400 degrees, the gas is allowed to escape and, if it is set on fire, will burn freely without causing an explosion.



Safety plug of McNutt gasoline can

ALLWON MOTOR GOGGLES

Strauss & Buegeleisen, 489 Fifth avenue, New York. PRICE, medium size, \$12 per dozen; large size, \$13.50 per dozen.

Two-color goggles with large round lenses, each lens made in a single piece. The upper part of the lens is dark enough to protect the eyes from a glare that would otherwise be blinding, while the lower part is clear, for ordinary service.

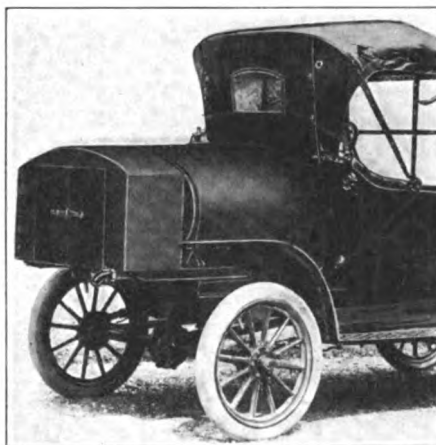


Allwon two-color motor goggles

WOODS LATHE ATTACHMENT

Woods Engineering Co., Alliance, O.

A boring and grinding attachment is furnished for use in a 16-inch lathe and with regular equipment will bore and grind cylinders from $2\frac{1}{2}$ to $5\frac{1}{4}$ inches in diameter and 11 inches deep. Both grinder and boring bar are attached to the faceplate of the lathe; the grinding arm outfit includes the gearing for driving the grinding wheels, two being furnished, having diameters of $2\frac{3}{8}$ and $3\frac{1}{2}$ inches. The spindle runs in S. K. F. double-row ball bearings and the drive shaft also runs on balls, all the bearings being thoroughly protected from dirt. Micrometer adjustments are made by an eccentric system. The lathe outfit includes the attachment proper with its grinding wheels and boring head, overhead countershaft, cross slide for the lathe carriage with two adjustable angle plates having vertical screw adjustment and T-slots for bolts, special face plate, diamond grinding wheel dressing tool and wrenches. The milling machine attachment differs only in the construction, which necessarily is changed to adapt



Detachable delivery tank for Fords

the outfit to the miller. The makers state that the work turned out by these tools is accurate and thoroughly satisfactory.

MARVEL BODY CLEANER

Drew Auto Supply Co., Bedford and Ditmas avenues, Brooklyn. PRICE, quarts, \$1; $\frac{1}{2}$ -gallons, \$1.75; gallons, \$3.

A liquid which the makers state is non-poisonous and non-volatile, which is applied to varnished body-work with clean waste and wiped off with dry waste and is designed to remove all dirt and leave a polished surface. Marvel is intended to take the place of ordinary washing and cleaning processes in addition to polishing.

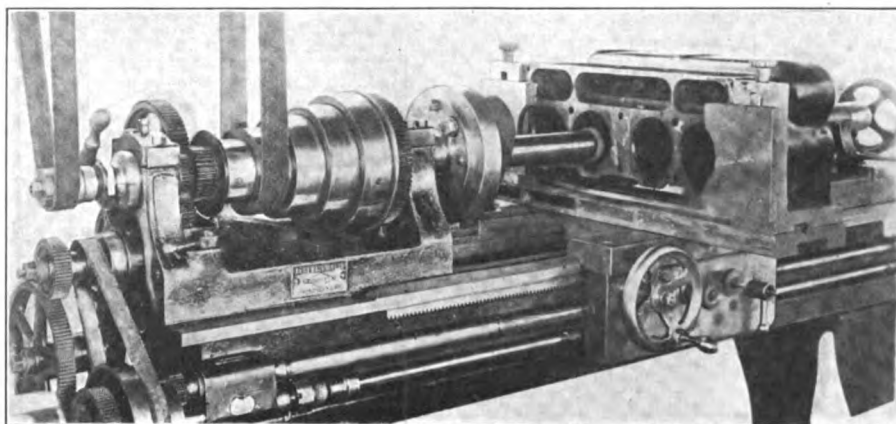
DETACHABLE DELIVERY TANK

Ohio Welding & Mfg. Co., 828 W. Sixth street, Cincinnati, O.

For making quick deliveries of gasoline a 100-gallon tank is made to be attached to the rear of a Ford runabout. The first time the tank is put on calls for about two hours' work; after that it can be put on in about five minutes, the maker states, so that it can be kept ready for emergency work and the car used ordinarily in other ways. The tank is fitted with faucets, air vent and other necessary fittings and may be had with or without a box for measures, funnels and other equipment.

Look On

Page 5

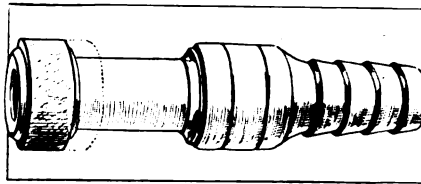


Woods boring attachment in place on 16-inch lathe arranged for grinding

BINKS WATER VALVE

Star Brass Works, 331 North Albany avenue, Chicago. PRICE, \$1.

For car washing a nozzle is made with an automatic shut-off which stops the flow of water the moment the operator releases his hold on the nozzle. A pressure of the thumb keeps the valve open. The nozzle is of brass, nickel plated, and has a rubber bumper to prevent damage to paint work. It is made for $\frac{3}{4}$ -inch hose.

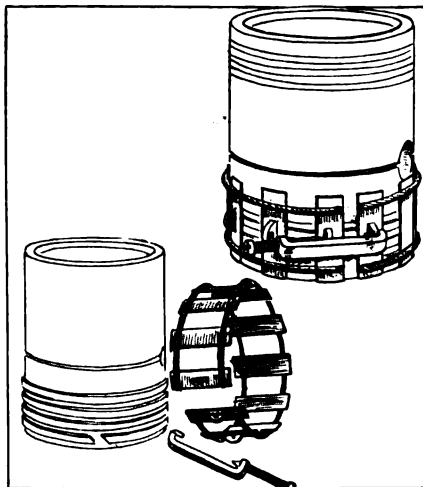


Binks' Automatic shut-off nozzle

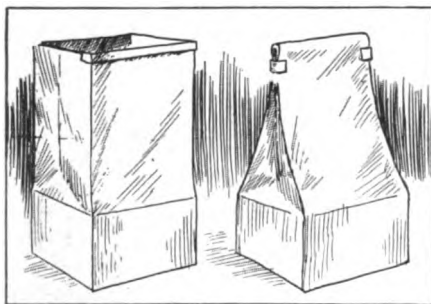
MORGAN PISTON RING TOOL

Morgan Mfg. Co., Newport, R. I. PRICE, for pistons 2 to 4 inches, 50 cents; 3 to 5 inches, 75 cents; 4 to 6 inches, \$1. DEALERS, 25 per cent.

A series of bars of flat steel are connected together by two flexible steel cables. The last bar on one end has a lug, and there are lugs on several of the bars on the opposite end. The device is wrapped around the rings of a piston and a small clamp, furnished with the tool, placed on the two lugs which are the right distance apart and screwed up until the rings are well down. When the piston is inserted in the cylinder, or



Morgan's piston-ring compressing tool



Beamish paper bags for carrying lunch

the cylinder let down on the piston, the device is pushed off the rings as they enter the cylinder in succession. The smallest size is suitable for Ford piston rings.

COLD LUNCH BAG

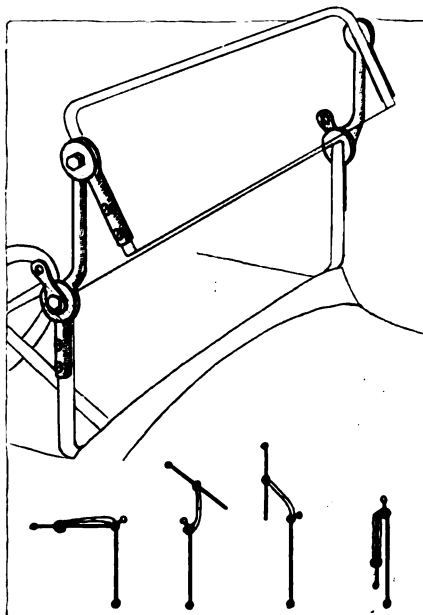
Beamish Glass Co., Kansas City, Mo. PRICE, 10 cents each.

A bag is made of strong paper stock with its lower part of heavy manila tag stock, and the whole is paraffined to make it waterproof. The makers state that cold lunches placed in it will keep clean and moist for a long time and that bottled beverages, packed in the bag with ice, will keep cold for 12 hours. The bag is sufficiently durable to use several times.

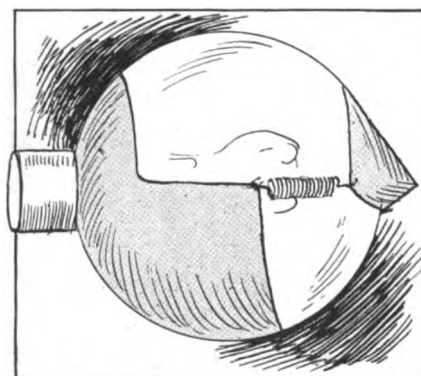
WINDSHIELD HINGE FOR FORDS

Illinois Brass Mfg. Co., 11-17 South Desplaines street, Chicago. PRICE, \$3 per pair. DEALERS, \$2.10 per pair.

A special hinge is supplied which, when applied to the windshield of the 1915 Ford, transforms it into a rain-vision and



Illinois windshield hinge for Fords



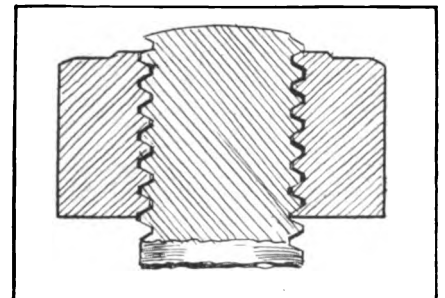
Stryker deflector on headlight bulb

ventilating shield. The hinges are applied in place of the original hinges, the same screws and the same tapped holes being used.

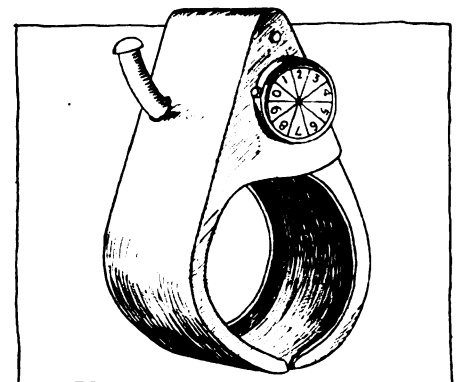
HOLDFAST NUT

Holdfast Nut Co., 344 South Hoyne street, Chicago.

Nuts of standard sizes have their threads coated, by what the makers designate a chemical welding process, with a soft friction metal which grips the threads of the bolt and holds tightly. After the nut has been coated part of the soft metal is removed by a special tap from the bearing or load surfaces of the thread, leaving the metal on the



Hold-fast nut with coated threads



Guardian combination robe lock

clearance side; the makers state that it is impossible to force the metal out. The nuts are applied in the ordinary way and can be used several times before wearing out the soft metal coating. Any size, style or grade can be supplied.

GUARDIAN ROBE LOCK

Mechanical Products Co., 321 Citizens Building, Cleveland. PRICE, \$1; DEALERS, 75 cents.

A hinged clamp, made of heavy sheet steel and nickel plated, is made to close over the robe and robe-rail and will lock in any position. No key is required, the lock being of the combination type. It can be used to lock not only robes, but suit case handles, rain coats or anything that the clamp will take in.

STRYKER LIGHT DEFLECTOR

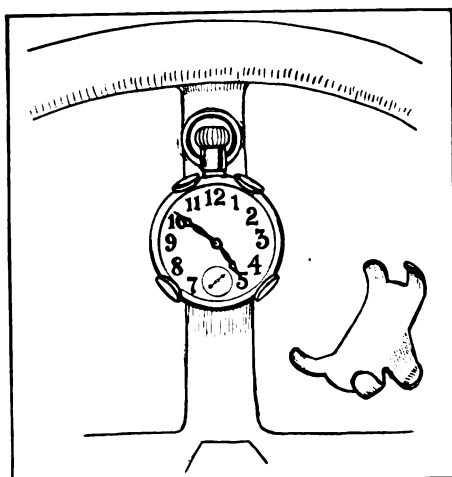
C. L. Stryker, 434 Beard avenue, Buffalo. PRICE, \$1 per pair.

A shield which fits over the bulb of an electric headlight and shuts off from the reflector the rays which otherwise would be thrown upward. A strong light is thrown on the road and the makers state that the deflector does not in any way diminish the useful illumination. The device can be attached and removed in a few seconds and can be transferred from one lamp to another without difficulty.

EKERN'S GARAGE GREASE GUN

Ekern Bros., Flandreau, S. D. PRICE, \$40. DEALERS, \$28.

A new model has been brought out having a heavy seamless steel cylinder 6 x 20 inches and holding 20 pounds of grease or 2½ gallons of liquid oil. The tank is mounted on wheels. The hose is 5 feet long and has a special nozzle and



Jay & Dee watch and holder on wheel

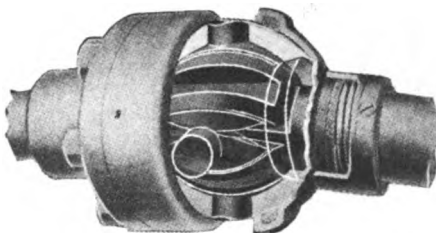
shut-off at the end. A scale at the top measures grease accurately and checks the amount used.

A feature of the new model is an extra set of gears which makes it possible to bring the piston from the bottom of the cylinder to the top, when the container is empty, at three times the descending speed. The piston is swung to one side to fill the cylinder with grease or oil.

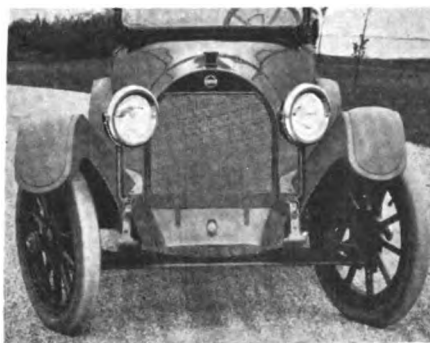
JAY & DEE WATCH HOLDER

Jay & Dee Specialty Co., Inc., 147 Nassau street, New York. PRICE, including watch, \$1. DEALERS, \$9 per dozen.

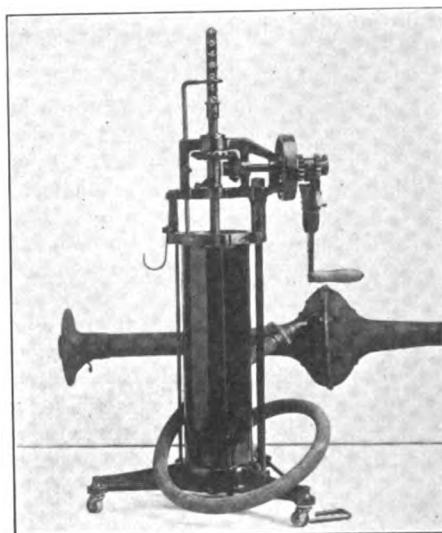
A one-piece steel clamp, with felt lining, has down-turned fingers which grip one arm of the steering wheel, and four up-turned fingers clasp the watch. While the grip of the clip is sufficient to hold the watch firmly, it is easily detached by a pull when leaving the car and can then be carried in the pocket, being a standard timepiece with special dial and hands. The watch and clip are not sold



Cooper universal joint



Car equipped with Steerlite brackets



Ekerns new model garage grease gun

separately. A special model is made for motorcycles.

STEERLITE BRACKET

Motor Products Co., Inc., Stamford, Conn. PRICE, standard type, \$15; Ford type, \$12.

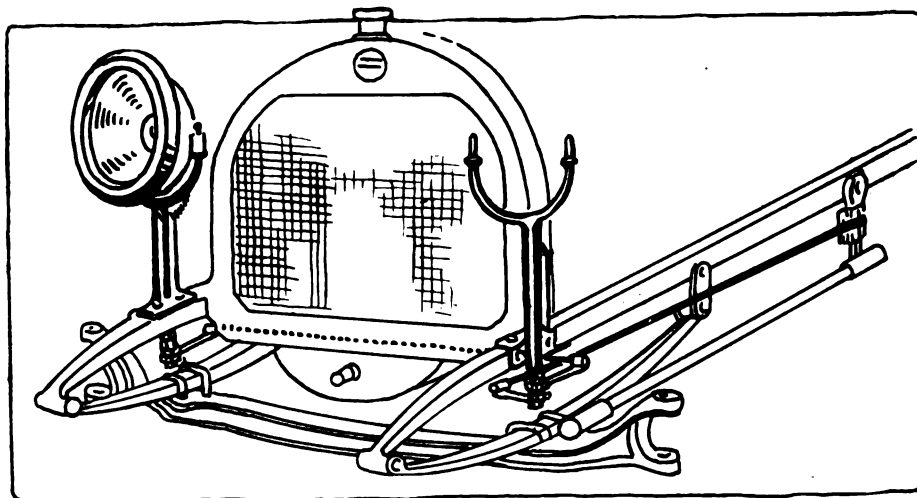
The forked brackets upon which the headlights are mounted are carried in sockets which permit their turning; the lower ends of the brackets have arms, a cross-rod connecting them and a drag link running to the steering arm, so that the headlights are moved at all times when the steering gear is operated. Conical bearings take the ends of the brackets and prevents looseness and consequent rattling.

COOPER UNIVERSAL JOINT

Cooper Flexible Transmission Co., New York.

Special constructional features are employed in this joint. The driving member has a flange bored for a square, tapered or parallel shaft as may be required, and carries a shell of spherical shape. The shell is joined to the flange by dovetailed splines and from 2 to 8 cap screws, according to the size of the joint.

Four jaws, each somewhat resembling a section of a sphere are forced into the shell under heavy pressure and held by four trunnions equally spaced at right angles to each other. The driven member is made up with four crossheads inserted in the shell between the jaws of the driving member; each crosshead has three flat surfaces at right angles to each other and a fourth spherical surface bearing against the spherical inside surface of the shell. The spherical surface in the crosshead is grooved for lubricant. Two of the flat surfaces of each crosshead bear against opposite sides of adjacent jaws, while the remaining flat surface forms one side of a square opening in which the driven shaft is inserted. A spring-secured dust-cover protects the working parts.



Steerlite headlight brackets which are connected with the steering gear

MOTOR WORLD

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Another Initial Order

The TWENTY-THIRD instalment of Motor World's Campaign for Greater Profits.

SUCH success followed the publication of Motor World's Initial Order, which was published in the issue of September 15, that we are publishing in this issue a second order of the kind, but intended for the garageman in a much smaller community—a community of from 200 to 800 persons, preferably located on one of the principal arteries of travel and within reasonable distance of a source of supply.

The amount of the order—about \$200—places it within easy reach of almost any garageman who has the desire, and who can see far enough ahead to capitalize his convictions, to enter the accessory and supply merchandising business. That the garageman can sell these products, nay, that he **MUST** sell them if he is to make a real success, we all know. What some of them have not known is the proper selection to make. We wanted a representative selection of articles for resale, things for which there is a steady demand and for which a demand can be stimulated.

Here is the list. Make the most of it. Your jobber, any jobber, can supply all of the articles listed on another page. You are not taking a chance. The order is small and the goods will sell themselves if they are properly displayed.

Looking Back

THE extent to which a good system properly operated can benefit a garageman is well shown by the experience of a garageman in a New Jersey city. This man keeps, in a specially prepared book, a careful record of every bit of work done. This gives the date, the name of the car owner, the nature of the work and

a number of other facts. Then if John Jones complains that certain work done on a certain date is not satisfactory, the garageman has a certain means of knowing whether the work was done by him, as the owner states, or by someone else.

In short, the record eliminates disputes with owners; it shows at a glance exactly what was done to Jones's car and when, the material used, the time consumed and the charge. This is an idea that many other garagemen might put to use with profit, for the human memory is not always infallible and disputes are costly.

Organized Work

THIS week garagemen from a large area of the United States assemble in convention in two cities—in Grand Rapids on October 7, and in Peoria on October 8 and 9. As a study in what can be done by organized effort these two conventions should furnish many valuable lessons.

Not the least valuable of the lessons already apparent is the fact that these men have come to a true realization of the results that can be achieved when many work together as compared with the detached and generally ineffectual attempts of individuals to accomplish something really big.

Editor Motor World:

Your articles on "Clean up" are the greatest ever. I have occasion to call on some of your graduates and note the difference, "before and after"; I note they "clean up" two ways; clean up shop and systematize windows, and then, clean up the money.

They are enthusiastic over the results accomplished and are some Motor World boosters, too. They say the Motor World campaign of educating garagemen is a winner, and I can vouch for it, as I note many direct results. I will give some names if you wish it.

I hope you will reach out and bring hundreds of others into the fold. It means more business, more profits and more satisfied customers. I have been an efficiency man for a number of years and cannot help but note the advantages of such a campaign among garagemen. They are in the greatest business in the world today and many do not realize it, nor the importance of building along progressive, systematic lines.

They cannot help but improve in their methods after reading your straight-to-the-point articles, and if they follow out instructions, like some I know are doing, it will pay them the biggest kind of dividends. It makes them better buyers as well as better salesmen.

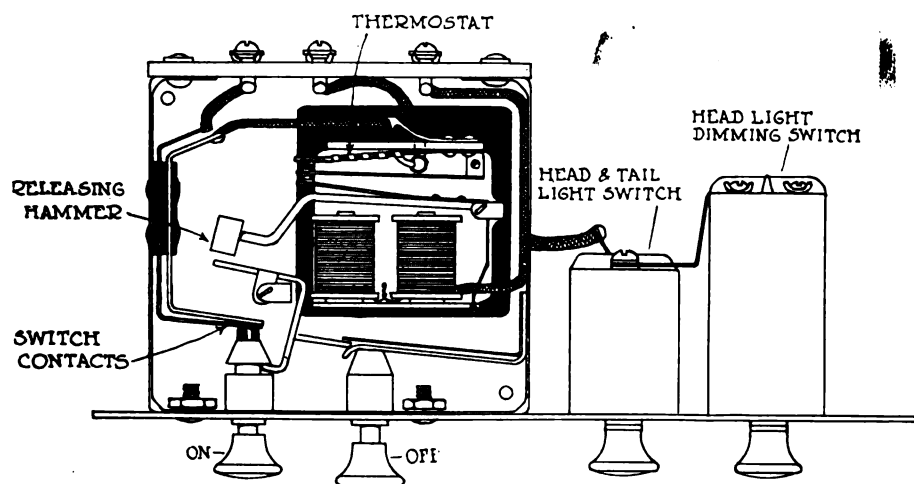
It is up to your circulation department now to get those "worth their weight in gold" copies in the hands of garagemen; we will help you in our territory. I recommend Motor World to someone every day.

Yours very truly,

P. C. Christman,

Burd High Compression Ring Co.

Milwaukee, Sept. 28.



The principle of the Connecticut automatic ignition system is unchanged, a thermostat opening the circuit when the motor is idle with the switch closed, or the motor remains stalled for a short time. The round type switch is continued

Connecticut Ignition Devices Simplified

Igniter Now Has Lighter, Rounded Top and a New Switch
Has Been Developed—Principle Is Unchanged

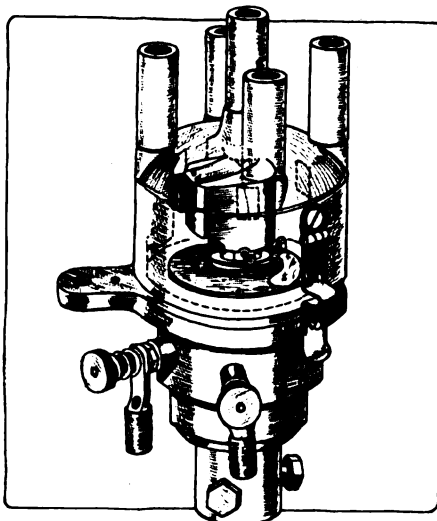
The Connecticut Telephone & Electric Co., Meriden, Conn., has brought out an improved type of its automatic ignition system which is considerably simplified and more compact than previous types. The principle has not been altered in the least, the improvement having to do only with mechanical construction.

The igniter housing now has a rounded top for the reception of the leads to the spark plugs, this form being an improvement over the flat top in that it provides no lodging place for moisture and dust, etc. At the same time the housing, which carries the distributor segments has been made lighter. The distributor arm also has been lightened and made more compact. Other improvements include the adoption of a new type of compression lock washer holding the cover plate over the breaker mechanism in place and a new type of enclosed ball bearing at the lower end of the driving shaft.

In principle, the new type of switch, which is in addition to the round type, is exactly like the older type except that it is mounted entirely behind the dash with nothing in view except a plate and four switch buttons. One of these serves to make the ignition circuit and another to break it. A third button switches on head and tail lamp and the fourth button dims the head lamps for city driving. Any combination of lighting switches can be incorporated in the switch plate.

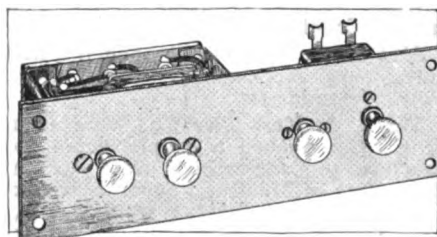
When the ignition switch is closed, current drawn from the storage battery is caused to pass through a tiny thermostat on its way to the coil and thence to the distributor and finally to the plugs. If the motor is not started within a short

time after the switch is closed—the length of time is easily adjustable—the



The igniter now has a rounded top to obviate the possibility of accumulation of moisture or dirt

thermostat closes a circuit through a tiny electric buzzer operating a releas-



All that appears of the new type switch is the dash plate, the remainder being behind the dash

ing hammer which automatically opens the ignition circuit and thus prevents the battery draining itself. Obviously, if the

motor is stalled and not again started, the thermostat will open the circuit in the same way. Thus, it is impossible for the motor to stand idle for more than a minute or so with the ignition switch closed. When the motor is running the amount of current passing through the thermostat is so small that it is negligible and has no effect.

Champaign Association Show Tour

CHAMPAIGN, ILL., September 30—The Champaign County Automobile Trade Association gave a unique show tour through the county on Wednesday and Thursday, September 29 and 30. Thirty 1916 models comprised the caravan, accompanied by as many salesmen, who exploited the respective merits of their cars at every town and village visited. A few minutes was spent at each place, long enough to allow the inhabitants to get a good view of the various cars and receive some advertising leaflets. It is planned to make these tours twice a year hereafter.

Texas Ready for State Fair

DALLAS, September 30—Texas is practically ready for the State Fair show, which opens October 17 to continue until October 31. Practically all the space at the Texas State Fair Grounds has been contracted for and indications point to the greatest automobile show the south has ever seen. The \$60,000 concrete automobile exhibit building, located almost in the center of Texas' 700-acre fair park, has been remodeled. Special plans for an exhibit that will catch the farmer's eye are being made in view of the fact that the sale of automobiles to the Texas farmer has more than doubled this year already the amount of sales last year.

How to Run a Lathe Properly

The South Bend Lathe Works, South Bend, Ind., has issued a useful booklet dealing with the practical problems of lathe operation in a practical manner. Not only is there a great deal of information given on the actual working of the machine, but its setting up, shop location, power drive and countershaft installation are covered in detail. Screw-cutting, taper turning, keyway and other special work, the use of the compound gearing, tool grinding, drilling, valve work, boring and tool tempering are a few of the many subjects treated.

Billings & Spencer Increase Capital

HARTFORD, CONN., September 30—At a meeting of the board of directors of the Billings & Spencer Co., held a short time ago, it was voted to increase the capital stock from \$300,000 to \$500,000. This increase is needed to finance the acquisition and incidental remodeling of the plant of the Columbia Motor Car Co. to meet requirements.

The RETAIL NEWS

EAST

Edward J. Brueckel, Rochester, N. Y., has moved his garage from Dewey avenue to 26-28 Portland street.

The Stewart Motor Corp., Buffalo, Stewart truck dealer, has moved into new salesrooms at 925-27 Main street.

The Eastern Garage Co., Baltimore, will build a garage at Presbury street near Bentalou street.

E. C. Welch & Son, Friedens, Pa., have succeeded **Freeman J. Hoffman** as Overland and Willys-Knight dealer.

John Bohanan, 3 Elm place, New York, will build a one-story garage at a cost of \$6,000.

M. E. Farrell, 1371 Carroll street, Brooklyn, N. Y., will build a one-story garage, 46 x 150 feet, at a cost of \$7,000.

Wm. Staats, 499 Flushing avenue, Brooklyn, N. Y., will build a one-story garage, 25 x 135 feet, at a cost of \$10,000.

Frank Richards, 148 Sunnyside avenue, Brooklyn, N. Y., will build a one-story garage, 73 x 98 feet, at an estimated cost of \$15,000.

Stief Motor Co., Shamokin, Pa., will build a two-story garage on Rock street.

John B. Wright Co., Washington, D. C., will build a one-story garage at an estimated cost of \$6,500.

Harry M. Boland, Worcester, Mass., Hupmobile dealer, has purchased the **Forer & Danziger Service Station** and moved it from 708 Main street to his own Kelly-Springfield tire agency at 677 Main street. The **Forer & Danziger Co.** operated a **Johns-Manville** service station, which will be continued by Boland.

The Universal Motor Co., Ford distributor, Binghamton, N. Y., will open new salesrooms, service station and office on Water street, where three floors have been leased.

Thomas B. Martin, Grafton, W. Va., has purchased the interest of **C. C. Whiteman** in the **Standard Garage** and with his son will continue the business. They handle the Overland.

H. D. Molloy, Allentown, Pa., has purchased from **Edwin Heiler** the garage on Easton pike.

The Hill-Rodler Co., 48 East Swan street, Buffalo, N. Y., has opened a general machine and repairshop. The company consists of **Ray C. Hill**, **Joseph L. Mesner**, **Carl Bauman** and **Joseph Rodler**.

Harry B. Pulsifer, one of the pioneer dealers at Worcester, Mass., who has been out of the motor business for some time, has returned to it again, this time handling the King.

The E. E. Wentworth Corp. of Maine, which has the entire distribution of Overland cars for the state, is to erect a big plant at Springvale for the manufacture of cars, bodies, etc. It will cost \$50,000.

The John & Arthur Co., one of the biggest accessory houses in Boston, has been forced to vacate its salesrooms at 117 Massachusetts avenue because it has outgrown them, and it will be located at 165 Massachusetts avenue shortly after October 1.

Jenkins & Robinson, proprietors of the **Blue Ribbon Garage**, at 69 Central

street, Worcester, Mass., have been appointed representatives for the **Gray & Davis** equipment and a service station has been installed.

J. W. Maguire, who has sold the **Pierce-Arrow** at Boston, Mass., for years, has petitioned the city authorities to grant him a permit to build a service station at 1061 Commonwealth avenue right beside the big structure now owned by the **Packard Motor Car Co.**, of Detroit.

James Nelson, proprietor of the **Electric Automobile Station** at 118 Church street, Hartford, Conn., has given up the Ohio electric and will henceforth conduct a general electric car garage business. The station is well equipped for the purpose.

The Universal Auto Co., 338 Pearl street, Hartford, Conn., has put in a special service department to take care of the tire customers. Free air with a man on duty at all times is provided.

Nathan Goldberg has acquired the interests of his partner, **A. A. Jensen**, in the **Standard Auto Top Co.**, at 355 Trumbull street, Hartford, Conn. He will continue the business at the same address. Jensen has arranged to open up a special department in the **Hartford Auto Painting Co.**, 410 Main street.

J. S. Leslie and **F. H. Plympton** have organized the **Springfield-Haynes Automobile Co.** at Springfield, Mass., to handle the Haynes, with salesrooms in the **McIntosh** building, 381 Worthington street.

The Double Mileage Tire Co., Inc., of Buffalo, N. Y., has opened a branch at 533 North Howard street, Baltimore. It is said that other branches will be opened in other parts of Maryland.

CANADA

McLean & Domoney, of the **Canada West Garage**, Montreal, have taken over the repair department of the **Winton** branch, now closed.

W. P. Lancaster, Montreal, has installed a complete vulcanizing plant in charge of **W. J. Holloway**, recently from the **Goodrich** plant. **Goodyear**, **Dominion** and **Goodrich** tires will be stocked.

The International Garage, Montreal, is now open under the management of **Ayer & Stedman**.

The Maritime Motor Car Co., Ltd., Montreal, has installed a show room for accessories and parts.

The Model Service Garage, Montreal, has opened at 428 Georgia. **W. J. Tulk** and **H. Critchley** are the proprietors.

Alec Speck & Son have opened a new vulcanizing shop at 741 Front street, New Westminster.

The J. A. Kerr Tire Co., Vancouver, B. C., has opened a supply depot for gasoline, oil, accessories, tires, etc., at the corner of Main and Seventh avenue.

The Acme Garage and Exchange has opened under new management at 1070 Main street, Vancouver, B. C. **A. C. Hill** is the proprietor.

SOUTH

James P. Headley, assistant sales supervisor for the **Maxwell Motor Sales Corp.**, has been permanently located in

Atlanta, Ga., and will control all state sales in the eastern states south of Washington, D. C.

T. H. McGiehen has opened a wholesale and retail accessory business at 1527 Canal street, New Orleans.

The Central Tire & Vulcanizing Co., Jacksonville, Fla., has moved from Orange and Main streets to the Conant building on Forsyth street. New quarters provide additional space needed for the business.

The Stovall-Gillespie Co. has been formed in Covington, Tenn., by **C. H. Stovall** and **Dr. G. B. Gillespie**. The **Studebaker** will be handled. **Thomas C. Biggs** is local sales manager.

The Southern Motor Car & Accessory Co. has opened salesrooms in the Ward building, Milam and Marshall streets, Shreveport, La. The company handles accessories.

D. P. Weeks, Tampa, Fla., has opened a service station for **Maxwell** cars at 217 Franklin street.

Paul Crawford, state distributor of the **Chandler**, Birmingham, Ala., has opened salesrooms at 2030 Fifth avenue, N.

A. A. Adams, Birmingham, Ala., will build a one-story garage to cost \$3,300.

The Mohawk Motor Corp., New Orleans, has purchased a site upon which a motor car factory will be erected at a cost of \$200,000.

The Greensboro Motor Car Co., Greensboro, N. C., will erect a two-story garage, 60 x 200 feet, at a cost of \$15,000.

James Curtner, Okmulgee, Okla., will build a two-story garage and office building, 100 x 109 feet, at a cost of \$35,000.

The Hines Automobile Co., Jackson, Miss., will move from its present location at Pearl and Roach streets to the **Croom** building on Capitol street.

John Hohnsee, Elm Grove, W. Va., has purchased the garage formerly operated by **McLaughlin & Ritter**.

The Firestone Tire & Rubber Co. has opened a branch in Jacksonville, to be known as the **South Atlantic Depot**. **F. M. Salley** is the manager.

SOUTHWEST

Russell E. Gardner, president of the **Banner Buggy Co.**, St. Louis, is at the head of a company which will equip a plant for the manufacture of automobiles.

Smith Bros., Independence, Mo., will equip a machine shop and garage at a cost of \$10,000.

M. E. Sims has bought the **Arlington Garage**, Arlington, Tex., from **King Eliott**.

J. H. Blanton has bought the **People's Garage** from **S. D. Day**, at Plano, Tex.

The Lemay Auto Repair Co. has established a repairshop at 640 Lemay Ferry Road, South St. Louis, Mo., and will build bodies and sell accessories.

The Missouri Auto Specialty Co., St. Louis, has increased the capacity of its salesrooms and service station 100 per cent.

Tallman & Son, Webb City, Mo., have moved from 211 Joplin street to 101 South Allen street. They handle the **Saxon** and **Regal**.

Tappan Bros., Helena, Ark., have erected a garage on the site of the one which was destroyed by fire several months ago.

The St. Louis Auto-Drayage Co., W. H. Baumann, manager, has opened a re-

F. B. Adams & Son, Dodge dealer, Gatesville, Tex., has bought the Nix Garage on Leon street.

pair and service station at 1907 Locust street, St. Louis.

The Adams Automobile & Supply Co., Chillicothe, Mo., has increased its capital from \$25,000 to \$50,000.

Bert A. Stevens, his son, **F. B. Stevens**, and **A. B. Guage**, the latter of St. Louis, have opened an automobile supply house at 432 St. Louis street, Springfield, Mo.

Bart S. Adams, 4701 Washington avenue, St. Louis, has obtained the agency for Midgley tires in the St. Louis territory.

MIDDLE WEST

Stephen Rigney and **R. A. Knipschild** have opened the Service Garage at Freeport, Ill., on Exchange street, in a new building that has been constructed. A general repair business will be conducted.

Herman Hansen has let the contract for a garage to be erected at 1919 Fourth avenue, Rock Island. The Velie will be handled and a general repair business conducted.

R. A. Herrington has opened a salesroom in the Joslyn Garage on South Court street, Rockford, Ill. He has the agency for the Detroit electric for 16 counties of northern Illinois.

Samuel Ferree, Mackinaw, Ill., has purchased the garage operated for three years by Walter E. McFarland and will add machinery and accessories. McFarland will enter the employ of Ferree as mechanic and salesman.

The Moutier Bros., garagemen, Peoria, Ill., have purchased the Fashion Garage at 828-830 Main street and will consolidate the two plants, giving them a total floor space of 22,000 square feet.

Folker Bros., of Frankfort, Ill., have let the contract for a brick garage, two stories high.

Charles Geiger and **Sidney Stiefel** have let the contract for a new garage building on West Madison street, Ottawa, Ill. When completed it will be operated by Joseph A. Hampson and son. The show room will be 20 x 90 and the garage 60 x 60.

The Estberg Garage, 460 Jackson street, Milwaukee, established about eight years ago by Emil Estberg, has been sold to Thomas C. Ducey. Estberg will devote his attention to the sale of the Oldsmobile, Chevrolet and Monroe.

Edward G. Buroff, operating a garage and repairshop at Main and North Fifth streets, Watertown, Wis., has disposed of the business to Halford and John Richardson, Neillsville, Wis.

The Reo Sales Co. has been organized at Eau Claire, Wis., to handle Reo cars and trucks. The agency formerly was handled by the Taylor Motor Co., Eau Claire. The members of the new firm are Ole G. Kinney, Colfax, Wis., and J. C. MacDonald, Eau Claire. Headquarters have been established at 701 South Barstow street.

Dvorak & Gaylor have taken occupancy of their new garage at Kewaunee, Wis., erected to replace a building destroyed by fire last winter.

The Home Lumber Construction Co., Baraboo, Wis., will erect a public garage and repairshop of fireproof construction, 68 x 138 feet, one story high.

The J. & J. Co., Battle Creek, Mich., accessory dealer, has been made distributor for the Firestone tire.

The Allen Auto Sales Co., of Galesburg, has been incorporated and will be located at 476 West Main street, Galesburg, Ill. C. H. Walters, B. E. Hewitt and D. J. Hewitt compose the new firm.

The Rice Lake Auto Car Co., Rice Lake, Wis., has been formed by V. N. Scott, Gus Paradis and Orville Caesar. A garage will be opened.

The H. McDermid Co. has occupied the former home of the Empire Automobile Co. at 450 North Capitol avenue, Indianapolis, Ind., the Empire company having moved to its new home on 15th street. The Colonial company, which distributes the Crow, occupies part of the building with the McDermid company.

H. F. Neighbors, general manager of the Neighbors Motor Co., Cleveland, Dodge dealer, will open a new service station at East 22nd street and Chester avenue.

The Bird-Sykes Co., Chicago, Ill., has arranged for the erection of a building 50 x 151 feet at 2213-15 Michigan avenue. This company is Paige dealer.

The Cincinnati branch of the White Motor Car Co. will build a garage and repairshop at Peebles Corner. Howard Fenker is manager.

Harry Huston, Boyd Cornelius and B. A. Stroup have taken over the Warren Garage, North Beaver street, Wooster, O., and have changed the name to the Wooster Service Garage.

The Peters Sales Co. has been formed in Columbus, O., with a capital of \$10,000 to handle the Brinnon mechanical starter for Fords. The company is headed by Charles M. Peters, and other members are George A. Peters, Albert Peake, J. B. McGaughy and M. K. McGaughy. Salesrooms have been opened at 77 Gift street.

Glen K. Tracy, Ford dealer in Kewaunee, Ill., will move into new quarters at 415-17 North Main street. The building is now being remodeled.

James & Wilke, who operate a garage in Manistique, Mich., will open a branch on Pearl street and place a competent repairman in charge.

Len Lester has opened a garage in Regranite, Wis.

The Syverson & Earl Motor Co. has purchased a new building in Tomah, Wis., and is fitting it up as a garage.

W. D. Haynes has opened an accessory store at 147 Main street, Cleveland, O.

W. C. Engel, West Allis, Wis., has enlarged his garage by building a 25 x 90 addition.

W. R. Hirt, who has been operating a garage in the Gates building, Wittenberg, Wis., has awarded contracts for the erection of permanent quarters, 35 x 65 feet, two-story, of concrete and steel.

Tiegs Bros., 1157 Second street, Milwaukee, are building a new garage and repairshop at a cost of about \$7,500.

The Double-Life Tire Co. is the name of a new concern established at 221 East Long street, Columbus, O., to do tire repairing.

The Gordon Rubber Co., Canton, O., has changed its name to the Gordon Tire & Rubber Co.

The O'Neil Tire & Protector Co., Akron, O., has changed its name to the O'Neil Tire & Rubber Co.

The Columbus Cadillac Co., Columbus, O., organized several weeks ago with an authorized capital of \$25,000, has taken

over the Cadillac agency in 22 counties in central Ohio. The agency was formerly held by the Curtin-Williams Automobile Co. T. H. Towell is president and E. C. Mollitor treasurer and general manager. Towell is also president of the Cleveland-Cadillac Co. and the Toledo-Cadillac Co., distributors of that make in those cities. The Columbus-Cadillac Co. will name a number of subagents in its territory.

The Miller-Main Garage, of 1418 East Main street, Columbus, O., has started the erection of a large addition to its building which will make it one of the largest garages in the city. The company is central Ohio agent for the Grant and Koehler trucks.

The Central West Motor Car Co., Columbus, O., has been organized with George W. Carroll general manager and A. E. Aull manager of sales, to handle the Oakland and Abbott-Detroit in central Ohio. The concern is located at 80-82 North Fourth street.

S. W. Schott & Co., Columbus, O., central Ohio distributors for the Empire, has placed the subagency for Knox and Licking counties with the Anderson Motor Sales Co., which will have headquarters probably at Newark, O.

The Racine Auto Tire Co. has established a branch at 140 Oneida street, under the management of W. M. Smith.

The Goodyear Tire & Rubber Co. will open a factory branch on South Market street, Youngstown, O.

The Indiana Argo Sales Co., Indianapolis, has moved to larger quarters at 343 North Capitol boulevard.

Harry Moore has opened an electric garage and charging station at 165 North Fourth street, Columbus.

The B. B. Battery Co. has been organized in Toledo to manufacture and repair storage batteries. The company is located at 3130 Monroe street.

The Standard Auto Co., Grand Rapids, has opened a garage, 60 x 70 feet, at 648 West Bridge street, under the management of R. F. Springer.

The Elyria Garage, Elyria, recently was damaged by fire to the extent of \$25,000. Seventeen cars were destroyed.

The Millard Auto Specialty Co., Cleveland, has moved to larger quarters at 2062 Euclid avenue.

The Marshall Motor Co. has been formed in Marshall, Ill., with a capital of \$2,500 to sell motor cars.

Halford and John Richardson have purchased the garage formerly operated by Edgar Duroff, Watertown, Wis.

Kentzler Bros., Madison, Wis., have opened a garage on East Doty street, where they formerly operated a livery stable.

J. B. Smith, Sterling, Ill., has built a garage on Fourth street, 48 x 85 feet.

The Herrick Auto Supply Co., Champaign, Ill., has almost completed its building.

The Pearce Motor Co., Waukegan, Ill., has been organized to handle the Ford. The capital stock is \$25,000.

The Century Tire Agency, Baltimore, has opened for business at 215 West Saratoga street. Century tires and a stock of accessories are carried.

The Cole Motor Co., Milwaukee, has moved into new quarters at 485-487 Jefferson street.

The Appleton-Buick Co. has been organized in Appleton, Wis., to deal in

automobiles and supplies. The incorporators are William J. Konrad, Jr., F. M. Charlesworth and Fred F. Wettemgel.

Parsons Garage, Indianapolis, has moved to larger quarters at 943 Fort Wayne avenue.

The Monmouth Tire & Vulcanizer Co., Monmouth, Ill., has moved into new quarters at 123 South First street. Firestone tires and accessories are handled.

A. E. Hardin will open a garage, 50 x 110 feet, on North Broadway, Lorain, O., in conjunction with the H. & G. Motor Co. of Cleveland, O. He will sell the Empire, Regal and Lozier.

The Free Tire Service Co. has leased a building at 308 West Third street, Dayton, O., and will open a tire service station. United States tires will be handled.

The Sharpe-Crawmer Motor Co. has opened a garage at 44-48 North Fifth street Zanesville, O.

Robbins & Schildmeier, 122 East New York street, Indianapolis, has opened a repairshop.

J. W. Walton, Evansville, Ind., has taken over the Packard agency and is building a garage and salesroom at 1205 Fourth street.

Howard Barclay, Bloomington, Ill., and C. O. De Long, Armington, Ill., have formed a partnership and will be incorporated under the name of the Barclay-De Long Co., to operate the garage and Chalmers service station lately owned by F. M. Hagans at 109 North Logan street, Lincoln, Ill. Hagans has disposed of his garage but will retain the agency of the Chalmers car.

The Bennett Machine Co. has leased the Pinkham building on Main street, between Third and Fourth streets, Quincy, Ill., and will remodel it for garage purposes.

Walter Mers has purchased for \$8,000 of Fred Scherer, the latter's three-story brick building in Ottawa, Ill., and will remodel it for a sales station, display and service and repairshop. The first floor will be a display room for Dodge Bros. and Overland cars. The second floor will be rented to T. J. Hoganson for a repairshop and the third floor for a paint shop. The plant will be known as the Ottawa Garage & Service Station.

NORTHWEST

J. H. Roberts has purchased the interest of David J. Conn, Boone, Ia., in the firm of Conn & Johnson, which operated a garage. The firm name has been changed to the J. H. Roberts Auto Co. Business will be conducted at the same place.

The Central Auto Co., Duluth, Minn., has taken over the Mutual Auto Co.'s garage. S. L. Potts and F. L. Pierce are partners in the new concern.

Charles Shoemaker has traded his farm for the Griffin & Garrett Garage at Ed-dyville, Ia., and will manage the business personally.

H. A. Leete, furniture dealer and undertaker, Greene, Ia., has purchased the business and equipment of the Greene Auto Co.

Charles Johnson and A. B. Waite have established a garage at 1473 Clay street, Dubuque, Ia. Both partners were former livery stable proprietors.

The Mutual Auto Co., Duluth, will build a garage at Third avenue and Superior street at a cost of \$25,000.

T. J. Desmond, Havelock, Neb., has

purchased the Havelock Garage formerly owned by Laxson & Hughhart. Overland cars and Kelly-Springfield tires are handled.

G. G. Stadel, Morristown, S. D., will erect a garage. The building in which he is doing business has been sold.

Burtneiss & Fjoslein, Enderlin, N. D., have let the contract for a tile garage, 50 x 75 feet, Railway street and Second avenue.

The Riverside Auto Co., Princeton, Minn., is a new concern that has opened a garage and motor car business.

Stow & Secerson, Rosholt, N. D., have opened the Rosholt Motor Inn.

Archie Miller and L. C. Brown, St. Paul, Minn., machinists, have gone to Belle Plains, Minn., to open a garage and repairshop in the former Soehnholz livery building.

W. F. Pinnick, Howard Lake, Minn., is a new garage proprietor.

A. E. Derenthal, Lanesboro, Minn., has bought the Lanesboro Garage.

Fred Fiegel & Son, Kasson, Minn., are erecting a garage for their automobile business.

D. D. Murphy, Blue Earth, Minn., is erecting a garage, 81 x 110 feet, on South Main street.

Patsy Whitford, Rapid City, S. D., has bought the Ryther & Son garage.

The Auto Exchange is a new concern at Billings, Mont. J. E. Sadring is president and E. J. Sadring is manager.

George Sausels, Buffalo Lake, Minn., is erecting a garage which will be 56 x 100 feet.

Martin Rasmussen, Clinton, Minn., has bought the garage business of Gust Hochgraber.

Guerin Bros., Red Lake Falls, Minn., whose garage was destroyed by fire, will rebuild at once.

The Blanding Motor Co., Harvey, N. D., has been incorporated at \$10,000 by C. H. Blanding, A. A. Blanding, M. L. Blanding.

PACIFIC COAST

The Pacific Kissel-Kar Branch, Portland, Ore., will erect a building at Davis street and Broadway. The structure will be 90 x 100 feet and will cost \$25,000.

The Oregon Motor Car Co., Portland, will erect a two-story building at Park and Davis streets at a cost of about \$30,000. The Studebaker is handled.

The Consolidated Garage Co., San Jose, Cal., will build a garage at First and San Carlo streets at a cost of \$10,000.

Olson, Johnson & Co., Troy, Idaho, are building a brick addition to their garage after tearing down two old frame buildings to clear the site.

W. J. Ball Motors Co., Spokane, has moved into its new garage at West 1116-18 Sprague avenue.

The Pacific Metal Products Co., Denby truck dealer, has opened a branch salesroom and service station at 2024 Van Ness avenue, San Francisco, Cal.

The Seven Seven Co., Spokane, Inland Empire distributor of Dodge cars, has moved into new quarters at First avenue and Adams street. The total floor space in the new quarters is 10,000 feet. A three-year lease has been taken on the building.

Foster-Larson Co., Spokane, has recently appointed the following Paige agents: Joseph Moersch, Genesee, Ida.,

and Bennington-Haight Co., Ritzville, Wash.

Foster-Larson Co., Spokane, Paige distributor, has taken the agency also for National cars.

The Wawkins-Twitchell Co., distributor for the Hudson, has retired from the field and the agency taken over by John Doran, Packard dealer. Harry Twitchell will be associated with the John Doran Co. as sales manager.

The Bewley Garage, North Taft, Cal., has been purchased by B. F. Crisman, owner of the Midway Garage, South Taft. The new owner is making many improvements in both machinery and stock.

The Firestone Tire & Rubber Co., Los Angeles branch, is installing a 200-ton hydraulic press in the solid tire department.

J. E. Livesey, Santa Ana, Cal., has purchased the garage and stock of the Milton & Walker Garage.

O. C. Lane, Burbank, Cal., has moved from the small frame building which he has occupied for several years and the Burbank Garage is now located in a handsome brick building 50 x 100 feet. There is a 32 x 30 salesroom. Opening off from this is a rest room for ladies and the private office of the garage proprietor. The front of the building is of plate glass and the floors of cement.

The Universal Specialty Co., Los Angeles, Cal., has opened an extensive vulcanizing and tire construction plant at 1237 South Figueroa street.

The Ward Motor Car Co., Los Angeles, Cal., has opened an extensive garage at 1788-98 West Washington street. This is one of the largest garages in the city and will make a specialty of repairing and rebuilding. A stock of accessories will be given first place.

The Big Tree Auto Works, Los Angeles, Cal., has moved into the new brick garage at 1732-40 West Washington street. This concern has been in business in Los Angeles for 28 years and was formerly the Big Tree Carriage Works. In their new location the owners of the garage, Joe H. Stich and Edward R. Watson, are doing a general garage business, making a specialty of painting and supplies. The garage is 125 x 150 feet.

The Savage Tire Co., Los Angeles, Cal., branch, is now located in the large brick building at 700 West Seventh street.

W. E. Baker, Monrovia, Cal., is now owner of the Monrovia Garage. For several years Baker has been in charge of the mechanical department of the garage, but he has branched out as a garage owner, having purchased the interests of L. S. Foulke and Charles Deatherage. Foulke and Deatherage will continue to make their headquarters at the Monrovia Garage for the present, having secured the agency for the Oldsmobile, Paige, Chevrolet and Cadillac.

MOUNTAIN

George Strohle Sons, Idaho Springs, Col., is planning to build a garage. C. K. Miller will be manager.

A. C. Friedman has started a plant for making over old tires at 1241 Broadway, Denver, as the Western Double Tread Tire Co.

J. M. Crosby, Salt Lake City, has been made Maxwell dealer. His salesrooms are at 344 State street.

Michigan Revises Laws Covering Storage of Gas

**Loss of Property Valued at \$6,000,000
Through Carelessness Prompts
Stringent Regulations—All
Garages Affected**

LANSING, MICH., September 27—Property valued at \$6,000,000 was lost through fire in the State of Michigan in 1914. Negligence and carelessness were among the principal causes for the fires. This year the legislature amended the fire marshal law and the fire marshal bureau has recently issued the revised regulations concerning the keeping, storage, use, manufacture, sale, transportation, etc., of gasoline, naphtha, petroleum products, gunpowder, dynamite and other highly inflammable materials. These regulations are of special interest to dealers, garagemen and filling stations.

Herewith are the principal provisions:

Section 1—The term gasoline or naphtha, as used herein, shall include any gasoline, naphtha or other volatile petroleum products, by whatever name called, that will flash at a temperature less than 80 degrees Fahrenheit, as tested in a Tagliabue open cup.

Section 4—All cans, drums, barrels, tanks or other receptacles holding or containing more than 5 gallons, and not more than 60 gallons, in which gasoline or naphtha is stored or handled may be placed above ground only if stored in a separate box or building well ventilated at or near floor, not exceeding one story in height, which building or box shall be used exclusively for the storing of gasoline or naphtha, and be located at a distance of not less than 10 feet from any other building, and such building or box shall at all times be locked when not in use. Provided, that nothing in these regulations shall apply to the reservoirs of motor vehicles.

Section 5—All tanks in which gasoline or naphtha is stored in quantities exceeding 60 gallons shall be placed under ground, with the exception that the State Fire Marshall may make special and specific requirements for arrangement of tanks at new and existing jobbing plants, store houses and distributing stations and may grant special permit therefor; provided, however, that nothing in this regulation shall be construed as prohibiting a manufacturer's bringing into his factory in air-tight cans or barrels or drums, sufficient material for his daily operative needs.

Section 6—All underground storage tanks, with the exception of existing underground tanks now in use and in good condition, must be approved and labeled by the Underwriters Laboratories, Inc. Tanks located under ground shall have top of tank at least 3 feet below the surface of the ground, and below the level of the lowest pipe in the building to be supplied. Tanks may be permitted underneath a building if buried at least 3 feet below the lowest floor and installation approved by the State Fire Marshal. Tanks shall be set on a firm foundation and surrounded with soft earth or sand and well tamped into place or encased with concrete. Tank may have a test well, provided test well extends to near bottom of tank and top and shall be hermetically sealed and locked except when necessarily open. When tank is located underneath a building the test well shall extend at least 12 feet above source of supply. The limit of storage permitted shall depend upon the location of tanks with respect to the building to be supplied and adjacent buildings, as follows:

A—Unlimited capacity if lower than any floor, basement, cellar or pit in any building within a radius of 50 feet.

B—20,000 gallons total capacity if lower than any floor, basement, cellar or pit in any building within 30 feet radius.

C—5,000 gallons total capacity if lower than any floor, basement, cellar or pit in any building within 20 feet radius.

D—500 gallons total capacity if not lower than every floor, basement, cellar or pit in any building within 10 feet, in which case it must be entirely encased in 6 inches of concrete.

All underground storage systems in which the tank may contain inflammable gases, shall have at least a 1-inch vent pipe, run from top of tank to a point outside of the building, but which shall end at least 12 feet above level of source of supply and in a location remote from fire escapes and never nearer than 3 feet, measured horizontally and vertically, from any window or other opening; the tank vent pipe shall terminate in a goose-neck protected in the outer end by a 30 x 30 mesh or equivalent brass wire screen. Or a combined vent and filling pipe, so equipped and located as to vent the tank at all times, even during filling operations, may be used.

The end of the filling pipe for underground storage tanks shall be carried to an approved location outside of any building, but not within 5 feet of any entrance door, or cellar opening, and shall be set in an approved metal box with cover which shall be kept locked except during filling operations; this filling pipe shall be placed in the supply end of the filling pipe.

Inflammable liquids shall be drawn from tanks by approved, labeled pumps with controlling apparatus and piping so arranged as to allow control of the amount of discharge and prevent leakage and discharge inside the building by any derangement of the system. When inside the building, the pump or other drawing-off device shall be located on or above the grade floor, preferably near an entrance or other well-ventilated place.

Where underground tanks are used, all pipes carrying volatile inflammable fluids except in dry-cleaning establishments, shall pitch toward tanks without any traps or pockets and shall enter tank at the top.

Blood Bros. Discontinue Cornelian

DETROIT, September 30—The Blood Bros. Machine Co., Allegan, Mich., which has been making the Cornelian cars in addition to its universal joints, has decided to discontinue the manufacturing of automobiles of which about 100 were made. Hereafter the factory will be devoted exclusively to the manufacturing of the Blood universal joints.

More Studebaker Additions

DETROIT, October 2—The Studebaker Corp. has acquired a large plant which adjoins its plant No. 3 and will begin at once the erection of additions to that plant. Other additions to be put up in this city consist of a three-story extension to plant No. 5, a new drop forge shop, 62 x 264 feet, and an addition 62 x 140 feet to the blacksmithing shop, both of steel, glass and tile, to building No. 25. The old De Luxe plant, which is part of plant No. 3, will be torn down and a four-story building, 326 x 52 feet, will be erected, to be used for machining work. An extension 35 x 120 feet will be made to the power house and the shipping platforms of plant No. 3 will be rearranged and extended.

Chevrolet Plans Output of 200,000 Four-nineties

**To Follow Lead of Ford in Establishing
Assembling Plants in Large Cen-
ters—Consolidation With
General Motors Denied**

FLINT, September 29—Through the incorporation of the Chevrolet Motor Co. of Delaware, with a capital stock of \$20,000,000, which will become a holding company for the Chevrolet Motor Co., of this city, the latter will at once expand its manufacturing facilities.

The Chevrolet company will follow the lead of the Ford company, by establishing a chain of assembling plants throughout the country and by using the local or parent plant principally for the making of the parts needed in the assembling plants. For the time being the Chevrolet will continue to be made at the main plant, but the 1917 models may be turned out principally from the assembling plants. Of the latter, those in New York, Tarrytown, N. Y., and Toronto, Canada, are already in operation. The one in Oakland, Cal., is to be started soon. Still another one will be located in St. Louis, where the Chevrolet Motor Co. of St. Louis has just been organized and incorporated, the capital all paid up being \$1,000,000. Russell E. Gardner, owner of the Banner Buggy Co., is strongly interested in that company.

While the output scheduled for the Chevrolet Four-Ninety for the 1916 season calls for 60,000 cars, plans have already been laid out for 200,000 cars of this model for 1917. A new assembling plant which will employ at least 1,000 men will be started at once. The plant of the Mason Motor Co. and that of the Walker-Weiss Axle Co., where motors and axles respectively are made for the Chevrolet cars, will be greatly enlarged and production will be practically doubled all around, a production of 200 Four-Nineties a day being the present schedule.

According to a statement made by General Manager A. B. C. Hardy, the Chevrolet Motor Co. of Delaware will be absolutely controlled by W. C. Durant and his present associates. The rumor that a consolidation with the General Motors Co. is contemplated is denied by Durant.

Acme Die Casting Expands

BROOKLYN, N. Y., October 4—The Acme Die Casting Corp., Bush Terminal, will increase its capital stock from \$125,000 to \$200,000. The company is at present increasing its plant and contemplates doubling its size within the next four months.

Michigan Service Men Take Steps to Organize

Service Managers Meet in Detroit and Arrange Preliminaries for Automobile Service Managers' Association of Michigan

DETROIT, MICH., September 30—The first steps towards the organization of the Automobile Service Managers Association of Michigan were taken this afternoon when, under the presidency of Alfred Reeves, general manager of the National Automobile Chamber of Commerce, service managers from Detroit and other Michigan plants met at the Hotel Statler to discuss the matter.

A committee consisting of C. R. Lester, of the Packard Motor Car Co.; D. H. Haselton, of the Regal Motor Car Co., and A. O. Weise, of the Oakland Motor Car Co., was appointed, Lester being named chairman, to prepare by-laws and a constitution. Another meeting will be held October 26, when the final organization will be effected and the details of the organization's work more fully discussed.

The object of such an association is primarily to reach an understanding among all motor car manufacturers of the state as to what the service department should ultimately be, or, in other words, to provide a standard service policy. There was no discussion on the subject at this first meeting, except that most of those present thought that this serious question of service can be better solved or at least brought to better and more universal policy by having an organization of those men who look after the service departments in the plants. Such an organization has just been perfected among the Indiana automobile manufacturers and will very likely be before long in the states of Ohio and New York.

Those who attended the meeting in addition to those mentioned were: C. W. Matheson, Dodge Bros.; E. A. Haskins, Federal Motor Truck Co.; Pierre Schon, General Motors Truck Co.; R. O. Gill, Saxon Motor Co.; J. E. Fields, Hupp Motor Car Co.; J. L. Kenyon, Cadillac Motor Car Co.; E. V. Rippin-gille, Hudson Motor Car Co.

Brand Gets Pierce-Arrow in Cleveland

CLEVELAND, October 1—Pierce-Arrow cars and trucks will be handled exclusively in Cleveland and adjacent counties in Ohio by the Fred P. Brand Motor Co. The new company will inaugurate a service station and equipment. Brand has been actively identified with the automobile industry since its inception. For several years he was sales manager of the Autocar company, the

Parish Mfg. Co. and the Kelly Motor Truck Co. He goes to Cleveland from Philadelphia, where he has been identified with the sale of the Pierce-Arrow.

DETROIT SALESMEN'S ASSOCIATION IS COMING

DETROIT, October 2—Following an address entitled "The Salesman the Man of the Hour," by D. M. Barrett, editor of "Salesmanship," at the Board of Commerce, preliminary arrangements were made for the organization of the Detroit Salesmen's Association. A committee was appointed to prepare recommendations to be submitted at a general meeting to be held next week. Among the members of the committee are: C. C. Cunningham, director of sales, Hudson Motor Car Co.; Norvell A. Hawkins, general sales manager, Ford Motor Co.; Harry W. Ford, president, Saxon Motor Co.; H. H. Hill, sales manager, Packard Motor Car Co.; Joseph Mack, president, Mack Printing Co.; F. H. Dodge, general sales manager, Burroughs Adding Machine Co.; H. Wilbert Spence, Mutual Life Insurance Co.; D. M. Barrett, and James W. Fisk, director of selling and service, J. L. Hudson Co.

NEW YORK, October 4—Payment for vehicles by installments and the rental, instead of purchase, of batteries, are features of a new plan by which the Ward Motor Vehicle Co. hopes to greatly increase the sales of its 750-pound Ward special delivery wagon. The battery will be the new Edison G4, with which the regular price of the car is \$1,375; but under the battery rental plan the price is \$875, and this includes a year's free use of the battery.

A special rate of \$10 per month for storage and washing has been secured for these cars at a number of garages; charging will be done by automatic plants which need no attention after the charge has been started. It is considered that \$10 will cover the cost of electricity for a month's ordinary work.

The Ward company has the cooperation of the Edison battery company and such central stations as those of the New York Edison Co., Brooklyn Edison Co., Flatbush Gas Co., N. Y. and Queens Electric Light & Power Co. and the Public Service Electric Co. of N. J. in the new campaign, which will be inaugurated this month and will, for the time being, be confined to New York and adjacent territory.

Saxon Demonstrators October 10

DETROIT, October 4—Every Saxon dealer throughout the country will have his new demonstrators of the 1916 Saxon four and six by October 10. In all departments of the plant work has been speeded up in order to make it possible for the several hundred demonstrating models to be shipped on time.

Free Car Storage Abuse Checked in Bloomington

Demand for Perpetual Free Storage Forces Dealers to Action—Three Months' Free Storage Limit Strictly Adhered To

BLOOMINGTON, ILL., October 4—Perpetual free storage, as demanded by some buyers of cars, has forced the dealers here to take action, many buyers having taken it for granted that the purchase of a car entitled them to all storage favors desired thereafter. This assumption has grown to be a burden, leading to congestion of cars and driving away patrons who would pay for the care of their property. As a result of this situation, which has been growing more aggravating with each succeeding year, a leading dealer here has issued a proclamation to all patrons that free storage ends after a car has been in service three months. After that period the owner must pay the same as any other patron. This rule will be rigidly enforced. The other dealers, recognizing the necessity for this action, are falling into line and hope soon to educate the public into looking upon this situation in a reasonable light.

Merger Develops Yerkes-Eveland

PHILADELPHIA, October 4—For the purpose of manufacturing and selling motor cars and trucks a charter has been filed at Dover, Del., for the incorporation of the Yerkes-Eveland Co., with a capital of \$100,000. This company was formed through the recent consolidation of the Stearns Motor Co. and the Eveland Motor Car Co., both of this city. Under the consolidation the company will handle the accounts of the Stevens-Duryea, the Stearns-Knight and the Stewart truck. Business will be carried on at 615 North Broad street, in the Stearns building, and a service station will be maintained at 1404 Ridge avenue.

Jacoby Passes Great Divide

PHILADELPHIA, October 4—Adam Jacoby, for a number of years a member of the Motor Service Co., 3645 Lancaster avenue, died at his home recently of acute indigestion. Previous to entering the automobile business Mr. Jacoby was engaged in the furniture business at York, Hanover and Reading, Pa. He is survived by a widow and a son.

No Change in Hupmobile Prices

DETROIT, October 2—President J. Walter Drake of the Hupp Motor Car Co. has announced that there will be no increase in the price of the 1916 Hupmobile models, notwithstanding increased cost of raw material or other causes.

Association News

CHICAGO COLLECTS DEBTS

CHICAGO, October 4—Secretary T. B. Beard of the Chicago Automobile Trade Association reports increasing success with that organization's National Used Car Market Report, two more dealer associations having recently become affiliated in its publication. These are the Hartford Automobile Dealers Association and the Des Moines Automobile Business Association. The Chicago association's Credit and Collection Bureau, which was established last July, is proving very valuable. A majority of the members are turning their collections over to the association and very satisfactory results are being obtained. Many accounts which collection agencies have failed to collect have been turned over to the association's department and about 75 per cent of these have been collected.

BINGHAMTON SHOW NOV. 22-27

BINGHAMTON, N. Y., October 4—The Binghamton Automobile Dealers Association will stage its annual show in the State Armory during the week November 22-27. Spaces will be scheduled according to size and location and will be put up at auction about one month prior to the date of the show, the highest bidder being given first choice of space and the next highest bidder second choice, and so on. Meetings are to be held every Monday at the Hotel Bennett for lunch at 12:30 to discuss matters pertaining to the show. The following special committees have been appointed: Advertising—W. D. Sweet, R. W. Whipple. Decorations and lights—W. G. Faatz, Mason Lowell. Sale of space—C. E. Sweet, S. M. Lewis. Music and entertainment—J. M. Davidge, N. A. Boyd. Railroad rates—F. F. Hammond, F. E. Spawn. Program—George Kaluss, F. W. Van Antwerp. Sale of tickets—C. M. Worden, F. Hammond. Handling cars and exhibits—Bruce Roff, E. H. June.

DAVIS HEADS CLEVELAND

CLEVELAND, October 4—The Cleveland Automobile Show Co., the dealer body which each year promotes the show in this city, has been reorganized and an entirely new board of directors has been named by the stockholders. The new officers and directors are: President, A. R. Davis, A. R. Davis Motor Co.; first vice-president, Walter C. White, White Co.; second vice-president, R. H. Schmunk, Peerless Motor Car Co.; secretary, T. H. Towell, Cleveland-Cadillac Co.; treasurer, G. G. G. Peckham, Ohio Buick Co. Directors: M. L. Bridgman,

Overland Cleveland Co.; George Kelly, Baker-R. & L. Co.; Joseph Greenwald. Fred H. Caley, who has managed the Cleveland show for the past four years, will again be in active charge. At the reorganization meeting it was decided to hold the show in the Wigmore Coliseum January 8-15.

COLUMBUS GARAGE CONVENTION PUT OVER TO OCT. 25-27

COLUMBUS, O., October 5—The state convention of garage owners which was to have been held here during the three days, October 4, 5 and 6, by the Columbus Garage Owners' Association, has been postponed three weeks. The new dates selected are October 25, 26 and 27.

ST. LOUIS MARKET REPORT

ST. LOUIS, October 4—The used car report of the St. Louis Manufacturers and Dealers Association for September shows 89 sales of 33 different makes of motor cars. This is the largest number of used car sales ever reported by local dealers. It is common knowledge that the actual number of cars sold since the last report was far in excess of 89, but all dealers have not yet become accustomed to report the sales of used cars.

SHOW SPACE DRAWING

NEW YORK, October 4—A large attendance of members of the National Automobile Chamber of Commerce is expected in this city Thursday, when the drawing for show spaces at the New York and Chicago shows will take place at the association headquarters, 7 East Forty-second street. Applications for space by passenger car makers are as great as in former years and it is expected that all available space in the Grand Central Palace in New York and at the Coliseum in Chicago will be taken up. The distribution of accessory space will be decided later and will be handled as formerly by the Motor and Accessory Manufacturers Association. The order of drawing space by car makers will be according to production during the previous season.

EARLIER DES MOINES SHOW

DES MOINES, October 4—The annual Des Moines show, held previously during the month of March, is scheduled for the week of February 14, 1916, according to an announcement by C. G. Van Vliet, secretary of the Des Moines Automobile Dealers Association, who is manager of the show. The new date, three weeks earlier than in former years,

is better because it puts Des Moines on a circuit of the big automobile shows in the middle west. The Minneapolis show will be held in the week of January 28 and the Kansas City show in the week of February 7, while the Omaha show follows the Des Moines exhibition during the week of February 21. In former years the local date always conflicted with the Boston show and as a result many factory exhibits could not be shown. The new dates conflict with none of the big shows.

LIGHT TOURIST TRAFFIC

SPOKANE, October 4—Secretary Frank W. Guilbert of the Inland Automobile Assn. reports that transcontinental tourist traffic is decreasing appreciably, averaging not over one-third the number of cars which reported at the association's bureau one month ago. The estimate to date of the number of cars passing through Spokane as transcontinental tourists coming from points as far distant as Chicago and the twin cities, is 2,000. An analysis of the starting point revealed parties from the following states within a short time:

Mont. ....48	Conn. 4	Can. ....12
N. J. 3	Cal. ....28	Minn. ....10
Ohio ....11	Neb. ....10	Ia. 8
N. Y. ....16	Wis. 8	Mass. 4
Ore. 8	Ind. 3	Col. 3
Wym. 3	Tex. 2	Ga. 2
Fla. 3	Mich. 2	Ill. 2
N. H. 2	Miss. 1	N. M. 1
Utah 1	Ariz. 1	Okla. 1
Ark. 1	Mo. ....13	

It is estimated that these parties averaged three persons and that the average time spent on the road was 20 days. The average expenditure per person is \$5 per day, and on this basis Secretary Guilbert estimates that tourists have distributed along the route of the National Park's transcontinental highway between Chicago and Seattle about \$600,000. It is expected that this traffic will be practically doubled next year.

ST. LOUIS WANTS LIGHTS

ST. LOUIS, October 4—A campaign for a better lighting system on Locust street, on which fully two-thirds of the local automobile industry is located, has been launched by the Motor Accessory Trade Association. The legislative committee is now gathering data and persuasive material which will be shown to the association and then presented to the municipal officials.

Milwaukee Ford Men Visit Plant

DETROIT, October 2—The retail salesmen of the Milwaukee branch of the Ford Motor Co. visited the plant this week. The nine salesmen, Messrs. Harbeck, Klein, Lambert, Learned, Mabie, O'Haire, Perkins, Strickler and Tobin, were shown through the different manufacturing departments and given much information which they could not have otherwise received and which, it is said, will be of great help to them.

Milwaukee Gas Producers Now Protecting Dealers

Scale of Prices Adopted With Higher
Rate to Owners Taking Small Quan-
tities—Uniform Standard and
Independent Figure

MILWAUKEE, October 4—A readjustment of the scale of prices on gasoline in Milwaukee and neighboring territory to the end that motorists will pay a premium over the prices made to quantity consumers, has been effected by both independent and Standard companies. For several years, or since the filling station came into vogue, motorists have been paying the same price per gallon for 5 or 10 gallons of gas that buyers of 100-gallon lots were charged. The readjustment, together with general advances in the price of gasoline, has brought the quotation per gallon on 60 per cent or so-called low-test gasoline to 12½ cents at filling stations; 11.6 cents per gallon for tank wagon delivery, and 10.6 cents per gallon for tank wagon delivery, 100 gallons or more. From May to September the price per gallon to individuals buying small quantities ranged from 10.5 to 10.6 cents, or the same price now quoted in lots of 100 gallons or more. The uniform quotations effective Oct. 1 are as follows:

Spec. Grav	Filling	Tank	Tank Wagon
	Station	Wagon	100 gal. or More
60 per cent.....	12.5c	11.6c	10.6c
65 per cent.....	16.5c	15.5c	14.5c
70 per cent.....	18.5c	17.5c	16.5c
72 per cent.....	20.5c	19.5c	18.5c

Gas Rises 1 Cent in Portland

PORTLAND, ORE., October 4—Gasoline costs just 1 cent more now than it did last week. Without any warning the wholesalers flashed the jump in price. For the past six months a number of stations in this city have sold gas at 10 cents at wholesale. These firms are now selling it at 11 cents, the present wholesale cost to them. Other stations are asking 12 cents and fractional degrees above and below that figure.

Gas Now 18 Cents in Hartford

HARTFORD, CONN., October 4—Gasoline has soared again, the prevailing price being 18 cents for Standard and Gulf, as well as other independent makes. The street filling stations operated by the Texas company and others report good business.

Gisholt Gets G. E. Madison Plant

MADISON, WIS., October 4—The General Electric Co., Schenectady, N. Y., has decided to abandon its branch plant here and transfer operations to the Fort Wayne electric works in Fort Wayne,

Ind. The Madison plant has been taken over by the Gisholt Machine Co., Madison, which is a large producer of turret lathes and other machine tools, and recently put several additions under way to make it possible to meet the extraordinary demands from domestic and foreign sources.

ACETYLENE CARBON BURNING 75 CENTS PER CYLINDER

HARTFORD, CONN., October 4—The price of carbon burning from cylinders by the acetylene process has been reduced from \$1 per cylinder to 75 cents per cylinder by nearly all of the local garages. This method has come into favor of late and all the garages which specialize in the practice are doing well from a financial standpoint; but competition has brought down the price.

To Furnish Brush Parts

DOVER, N. J., October 4—The Electric Brush Co. has been formed here with the purpose of producing brush parts for all makes of electrical apparatus used on motor cars. The company plans to carry in stock at all times brush parts which will fit all sizes and types of lighting generators and starting motors, magnetos, etc.

Warner To Market Direct

CINCINNATI, October 4—The Warner Auto Top Co., which heretofore has marketed its upholstery and top covers through distributors, has altered its sales policy and hereafter will market its product direct to the trade. All the Warner products hereafter will be marketed under the company's own name.

Columbia Truck Moves to Pontiac

PONTIAC, MICH., September 30—The Board of Commerce has succeeded in inducing the Columbia Motor Truck Co., Kalamazoo, Mich., to move to this city. A site of 5 acres will be furnished. Temporary quarters have been secured in the Osmun building, where 20 to 30 men will be employed; when the plant is completed the force is to be 75 men. The Columbia company expects to build 300 trucks within the next 12 months, it is said.

Franklin Workmen Get Raise

SYRACUSE, N. Y., October 4—Twelve hundred employes of the H. H. Franklin Mfg. Co. have had their wages increased 2 cents an hour. The increase means an addition of more than \$57,000 annually to the company's payroll. The announcement of the advance which was made this week includes the statement that it is the result of an efficiency system which has increased the profits of the company and it was thought just that the workmen should share in them.

Southern Dealers Favor Standard Tread Vehicles

Canvas of N. A. C. C. Reveals Little
Need of 60-Inch Tread Except in
Two Sections—Deliveries Are
Slow on Wide Treads

NEW YORK, October 4—At the regular meeting of the National Automobile Chamber of Commerce, Inc., to be held in this city October 7, it is expected that the committee on automobile treads will report. This committee met in Detroit last week and has its recommendations ready. The manufacturers will continue to produce cars with 56-inch tread as standard, which naturally means that the 60-inch tread is being dropped. The chamber made a broad canvass of dealers through the southern states and discovered that sentiment was strongly in favor of the standard 56-inch tread. With these dealers the difficulty with the 60-inch tread has been in getting deliveries. The factories have pushed the standard tread orders, as they have represented nearly 100 per cent of production, and dealers with orders for 60-inch treads generally had to wait.

It was found in a canvass of road conditions in the south that only in two sections is it difficult to use the 56-inch tread, these being southern Georgia and northern Florida, which are bad road sections. In other sections of the south road improvements are becoming so general that the standard tread meets practically all conditions. Automobile manufacturers generally charge \$15 additional for 60-inch tread vehicles, which naturally makes the southern dealer favorable to the standard width.

Progress on standardizing wagon treads through the south is being made, although at present horse vehicles have treads varying from 52 to 70 inches. There is an effort among the carriage associations to standardize on either 54 or 60-inch treads, or both.

Canadians Taking More Cars

DETROIT, October 2—Louis Logie, district manager for Canada for the Chalmers Motor Co., reports after an extensive investigation of conditions in Canada that the sale of cars has been about 50 per cent greater thus far this year than in 1914, and that in the province of Ontario, where most of the Canadian automobile manufacturing plants are located, 7,000 more cars have been sold thus far this year than up to that time in 1914. The condition is the more remarkable when it is considered that war taxes have been a big drain upon the people while on imported cars the duty is now 42 per cent. The crops are said to be the best recorded in years.

Prominent Men of Trade Who Assume New Duties

Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry

E. C. Gorman, who had charge of the Cadillac Motor Car Co.'s exhibit at the Panama-Pacific Exposition, San Francisco, and who has been connected with the Cadillac company's sales department for several years, has been appointed district representative for the middle western states. His territory consists of the Dakotas, Iowa, Minnesota, Nebraska and the provinces of Alberta, Manitoba and Saskatchewan in Canada.

Walter E. Holland has resigned his position as research engineer of the Anderson Electric Car Co., Detroit, to become a firm member of the Broadway Automobile Co., Inc., Seattle, northwest dealer for Detroit electric pleasure cars, Walker Balance Drive electric trucks, Elwell-Parker industrial trucks and Philadelphia storage batteries. Holland will be secretary and treasurer of the company.

James Joyce, for two and one-half years eastern manager of the Kelly-Springfield Motor Truck Co., has resigned to become eastern manager of the Houk Mfg. Co., Buffalo, N. Y.

L. G. Hartdorn, until recently production manager of the Emil Grossman Mfg. Co., Inc., Brooklyn, N. Y., has been appointed factory representative to cover the manufacturers in the territory west of Buffalo.

J. T. Collins, formerly of the New York Chevrolet branch, has been made manager of its Albany branch, succeeding W. L. Bunker, who resigned to go into business in Springfield, Mass.

William Watson has been appointed superintendent of service for the Kent Motors Corp., New York, distributor for the Abbott and Marion.

William Kelley has rejoined the Maxwell Motor Co.'s staff as consulting engineer with especial duties in adapting car design to manufacturing facility.

C. W. Flinn, for the past year identified with the Chevrolet Motor Co. of New England at the Boston, Mass., branch, has been promoted to be manager of the company's branch at Stamford, Conn.

Edward F. Moloney has joined the Gibney Tire & Rubber Co. as manager of the New York branch.

Walter P. Coghlan, formerly in charge of Klaxon sales in the northwest, takes the place of W. O. Turner as sales manager of the Lovell-McConnell Mfg. Co.



W. D. McCALL
Dallas, Texas

District Representatives

XXVII

This is No. 27 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

W. D. McCall, who is district representative of the Overland in Dallas, Tex., entered the motor car world in January, 1911, as special representative of the Studebaker Corp., Detroit. He remained in this position until December, 1913, when he transferred his allegiance to the Overland company and ever since has been located in Dallas with the Overland Co. of Dallas.

J. A. Inness, formerly manager of the Philadelphia branch of the Chase Motor Truck Co., Syracuse, N. Y., has been appointed manager of the New York branch. He succeeds F. B. Porter. **C. E. Collard**, formerly with the New York branch, succeeds Inness as Philadelphia branch manager.

M. B. Langworthy has resigned as president of the King Motor Sales Co. of New York, Buffalo.

Benjamin L. Hangor has been promoted to assistant manager of the Studebaker branch in Boston. He was formerly a traveling salesman with the commercial department of the Studebaker Corp.

Earl M. Taber has been placed in charge of the truck sales department of Russell P. Taber, Reo distributor, 338 Pearl street, Hartford, Conn.

W. D. Newlin has been transferred to Springfield, Ill., and placed in charge for the Mitchell-Lewis Motor Co. as sales manager for the Sangamon county territory.

Charles F. Lott, who has been private

secretary to Hugh Chalmers, president of the Chalmers Motor Co., has been appointed secretary of the company.

H. E. Bullen, formerly with the Rands Mfg. Co., is now in charge of the manufacturing department of the Michigan Auto Top Co., which has bought the business and stock of the Michigan Auto Top & Painting Co.

W. E. Sigle has become production manager of the Sommer Motor Co., Bucyrus, O. He has occupied a similar position with the Maxwell company at Dayton.

W. J. Shay, recently with the Judd & Leland Mfg. Co., has been appointed Chicago manager for the Champion Spark Plug Co., Toledo.

R. D. Dodge has been made sales manager of the Houk Mfg. Co., Buffalo, N. Y. **F. W. Kyte**, who was sales manager, is now assistant general manager. At the annual meeting the following officers were elected: President, Geo. W. Houk; vice-president, E. McM. Mills; treasurer, F. H. Moody; directors, Ira Gleason, C. A. Kane.

Dealer Factory Visitors of the Week

DETROITER MOTOR CAR CO.

E. L. Kunkel.....Democracy, O.
M. M. Mull, Madison Garage.....Toledo
J. McNamara.....Boston
George L. Schultz.....Richmond, Ind.
H. L. Pelton.....San Francisco
L. P. Madsen.....Council Bluffs, Ia.
F. M. Clevenger.....Centerville, Ind.
Bert G. Bates.....Coldwater, Mich.

PRIGE-DETROIT MOTOR CAR CO.

W. L. Erue.....Columbia City, Ind.
D. E. Miller.....Warren, O.
H. G. McCrumm.....Jackson, Mich.
H. E. Gwinn, Central A. & V. Co.Columbus, O.
D. L. Sutherland.....Washington C. H., O.
Ed. Witherspoon.....Alliance, O.
M. D. Coate.....Cleveland, O.
A. H. Reed.....St. Louis, Mich.
H. H. Karston.....Zeeland, Mich.
Arthur D. Ort.....So. Bend, Ind.
A. S. Hill.....Pt. Huron, Mich.

STUDEBAKER CORP.

A. W. Buck, Brown, Rowan, Buck Co., Indianapolis

Orin S. Wilson.....Philadelphia
E. R. Benson.....Portland, Me.
T. V. Hill.....Shamokin, Pa.
H. A. Paxton.....Bucyrus, O.
L. O. Naylor.....Idaho Falls, Idaho
Walter H. Flessel.....Huntington, N. Y.
Jos. Hahn.....Cleveland

FRANKLIN AUTOMOBILE CO.

F. B. Heathman, F. B. Heathman Motor Co., Dayton, O.
W. F. Anderson and F. G. Jager, the Springfield Auto Co., Springfield, Mass.
Nicholas Hughes, Hughes G. Co., Paterson, N. J.
Fred M. Jones.....Elmira, N. Y.
F. V. Price, Jr., Elizabeth A. Co., Elizabeth, N. J.
G. A. Tisdale, the Franklin M. C. Co., New York

WESTCOTT MOTOR CAR CO.

T. M. Orr.....Melbourne, Australia
Wm. Fuhrman.....Ft. Wayne, Ind.
C. S. Burke.....Springfield, O.
Dr. Tindall.....Hartford City, Ind.
J. L. Wiese.....Champaign, Ill.

Expect Larger Field for Sheephead Bay Contest

Postponement to October 9 Because of Wet Track Will Permit Several Others to Start—Additional Eliminations October 6

NEW YORK, October 2—The 350-mile race for the Astor Cup on the Sheephead Bay 2-mile board speedway, which was scheduled to start at 12 o'clock today, was postponed at 8 o'clock this morning because of rains. It started raining in New York and vicinity yesterday morning and has rained constantly ever since, the storm being a part of the tropical hurricane that devastated the southern states. The race will take place on Saturday, October 9, starting at 12 o'clock noon. The grounds, which were practically covered with water, would not be sufficiently dried for a race on Monday, and several hundred of the help required in conducting the meet could not be obtained except on a Saturday.

Much disappointment was expressed by out-of-town guests at the postponement of a week, many of these coming from places as far distant as Omaha, Atlanta and St. Louis, having to return without seeing the race. A canvass of the New York hotels showed over 20,000 out-of-town guests registered, all of these being classed as spectators.

What the result of the postponement will mean cannot be gauged at this time, as many who intended to be present cannot attend. The effect of the postponement on the number of cars starting may mean the addition of one or two that were not ready but were to have taken their elimination trials early Saturday morning before the race. These cars have not yet taken their trials, but will take them on Wednesday, October 6. Fortunately there are no other racing events scheduled, so no inconvenience will be caused to the drivers.

The sale of seats for today's race exceeded \$80,000, and it was expected that if fine weather had prevailed yesterday and today that over 125,000 spectators would have attended.

The list of starters with their official numbers, is given herewith, though it is not yet certain whether all of the 22 will be starters, as some of them have yet to show whether they can make the requisite speed of 85 m. p. h. for a lap of the track.

General Motors Voting Trust Dissolved

NEW YORK, October 4—The voting trust of the General Motors Co. has been dissolved. The voting trustees were J. N. Wallace, Frederick Strauss, J. J. Storrow, W. C. Durant and E. W. Clark,

who acted under the agreement dated October 1, 1910. Sufficient funds have been deposited with the Central Trust Co. to pay the 6 per cent five-year notes maturing October 1, 1915. Holders of stock may now receive stock certificates upon presentation of their stock trust certificates at the Central Trust Co. The trust certificates must be presented prior to October 26, as the books of the company close on that date, to reopen after the annual meeting, November 17. At a special meeting of the governors of the New York Stock Exchange, \$14,985,200 preferred and \$16,506,800 common stock was issued by the General Motors Co., in exchange for \$14,583,700 voting trust certificates for preferred and \$16,189,000 voting trust certificates for common stock, with authority to add \$3,053,200 preferred and \$3,367,200 common. This makes the total amounts of General Motors authorized to be listed \$16,038,400 preferred and \$19,874,000 common.

Denby Adds ¾-Ton Truck

DETROIT, October 4—In addition to its 1-, 1½- and 2-ton models, the Denby Motor Truck Co. has placed on the market a ¾-ton truck similar to its other models and selling for \$890 with open express body. With panel body there is an additional charge of \$90, and with open express body but with top, \$60. The new Denby is styled type U and has a wheelbase of 119 inches. Its motor is a four-cylinder block 3½ x 4½. Solid tires are furnished, 34 x 3 front and 34 x 3½ rear. Electric starting and lighting will be furnished at an additional cost of \$85.

Eckhart, Auburn Head, Dies

AUBURN, IND., October 1—Charles Eckhart, 74 years of age, motor car and buggy manufacturer, philanthropist, and at one time candidate for governor of Indiana on the Prohibition ticket, died here yesterday, following a long illness. He was the founder and president of the Eckhart Carriage Co. and the Auburn Automobile Co., although his son, Morris Eckhart, was in active charge of both businesses.

ENTRIES FOR ASTOR CUP

No.	Car	Driver
1—	Peugeot	Resta
2—	Peugeot	Aitken
3—	Delage	Oldfield
4—	Peugeot	Burman
5—	Stutz	Anderson
6—	Peugeot	Wilcox
7—	Stutz	Rooney
8—	Stutz	Cooper
9—	Duesenberg	O'Donnell
10—	Maxwell	Rickenbacher
11—	Mulford Special	Vail
12—	Pugh Special	LeCain
13—	Sebring	Haibe
14—	Duesenberg	Haupt
15—	Duesenberg	Henderson
16—	Maxwell	Mulford
17—	Delage	Hughes
18—	Peugeot	Limberg
19—	Delage	De Palma
20—	Mercedes	Porporato
21—	F. R. P.	Allev
22—	Ogren	G. Bergdoll
23—	Erwin Special	

Elkhart Brings Out \$775 Four-cylinder Touring

Advanced Streamline 5-Passenger Body With Complete Equipment—Motor 3½ x 5 With L-head Detachable Top Cylinders

ELKHART, IND., October 5—The Elkhart Carriage & Harness Mfg. Co. is bringing out a new low-priced model to sell at \$775 as a five-passenger touring car. The specifications include a unit power plant having an L-head 3½ x 5 four-cylinder motor with separate head, vacuum fuel feed with tank in rear, three-speed gearset, Raybestos faced cone clutch, floating axle, three-quarter elliptic rear springs, wheelbase 114 inches. The body is an advanced streamline design with high sides. Equipment includes electric starting and lighting system, one-man type top, quick attachable curtains, demountable rims with one extra.

New Plant for Briscoe

JACKSONVILLE, MICH., October 1—After several months of negotiations between the Briscoe Motor Co. and the Chamber of Commerce, the Briscoe company will build a new plant on Wildwood avenue to cost about \$100,000 and employ about 5,000 men. One of the principal conditions for the realization of the expansion plan was the provision of at least 200 lots for the erection of workingmen's homes. An organization known as the Billancourt Land Co. was effected and it owns now 130 acres of land on Wildwood avenue. Two hundred lots are to be offered for sale at \$300, payable \$50 down and \$50 per month. The expansion of the Briscoe plant will also mean an extension of the Argo and other concerns in which Benjamin Briscoe and his associates are strongly interested.

Bethlehem Steel Wants Knox

SPRINGFIELD, MASS., October 4—Negotiations are under way to sell the plant of the Knox Automobile Co. to one of the big companies making war munitions. Officials of the company have admitted that they were approached on the subject, but they would not state who made the offer. From what was learned unofficially through men closely identified with Knox affairs it is likely that the Bethlehem Steel Co. would be the buyer. The Knox company is understood to have filled some of its large war orders for tractors for the past few months as sub-contracts for the Bethlehem Steel Co., so an intimate line has been established between the two companies it would appear.

Motor Car Dealers Recently Established

PLEASURE CARS

KENTUCKY		
Place	Car	Dealer
Emmence	Hupmobile	J. M. Miles & Son
Frankfort	Haynes	Central Garage
Georgetown	Maxwell	Nicol Garage
Glasgow	Hupmobile	J. W. McMeekin, Jr.
Greenville	Maxwell	Glasgow Motor Co.
Greenville	Hupmobile	Martin & Morgan
Hartford	Hupmobile	Irvin & Gilman
Hartford	Maxwell	Cooper & Co.
Hawesville	Maxwell	Hartford Motor Co.
Henderson	Hupmobile	C. Haynes
Hopkinsville	Maxwell	White-King Motor Co.
Horse Cave	Hupmobile	F. A. Yost & Co.
Lancaster	Maxwell	Horse Cave Garage
La Grange	Hupmobile	W. D. Hammock
Lawrenceburg	Maxwell	Yager Bros.
Lebanon	Haynes	J. P. McWilliams
Lexington	Haynes	E. R. Aker
Lexington	Maxwell	Dewhurst Garage
Madisonville	Maxwell	Neal Stivers
Marion	Maxwell	T. H. Cochran
Mayfield	Hupmobile	H. M. Cousins
Morganfield	King	W. C. Waggoner
Mount Sterling	Hupmobile	H. C. McKee & Sons Co.
Midway	Maxwell	Cogar-Rumley Co.
Nicholasville	Hupmobile	R. M. Sparks
Owensboro	Paige	Haynes Gordon Auto Co.
Owensboro	Maxwell	J. W. Field
Owensboro	King	Rice Jesse
Paducah	King	Park Garage
Princeton	Maxwell	C. J. White & Sons
Richmond	Maxwell	Oldham & Harbor
Sadleville	Maxwell	E. S. Baldwin
Salvia	Maxwell	G. L. Alford
Shelbyville	Hupmobile	G. S. Wells & Son
Simpsonville	Hupmobile	Farmers Supply Co.
Stanford	Maxwell	H. C. Carpenter
Standiford	King	W. B. McKinney
Sturgis	Maxwell	J. M. Stone & Sons
Taylorville	Hupmobile	Taylorville Garage
Versailles	Hupmobile	J. U. Field
Wilmore	Maxwell	H. E. Fisher

MASSACHUSETTS

Boston	Dort	Wentworth-Fosdick Co.
Boston	Ford	Turner-Bing Co.
Milford	Ford	J. H. Stratton
Worcester	Reo	Worcester Reo Co.

MICHIGAN

Au Gres	Dort	W. H. Schalberger
Battle Creek	Dort	United Motors Co.
Bay City	Dort	Hartill Sales Co.
Bay City	Studebaker	Farmers Auto & Mch.
Beaverton	Dort	Ros & Helmhoch
Beal City	Dort	J. Tilmann & Son
Boysie City	Ford	Hilly Heaton
Crystal	Dort	O. A. Sanford
Charlotte	Oakland	Wilson-Oakland Co.
Detroit	Ford	A. A. Crumley Co.
Detroit	Scrimge-Booth	Gordon Auto Sales Co.
Detroit	Dort	A. A. Crumley Co.
Detroit	Allen	Reason Garage
Detroit	Paterson	Reason Garage
Evart	Dort	Sandberg & Allison
Farmington	Dodge	Park Garage
Freemont	Dort	R. F. Southard
Freeport	Dort	J. W. Bennett & Son
Fosteria	Dort	N. Tempkins & Son
Grand Rapids	Dort	Oswald Motor Car Co.
Howell	Dort	W. T. Armstrong
Ironia	Dodge	Miller & Ashe
Jackson	Dort	R. S. Howland
Kalamazoo	Dort	W. O. Harlow
Lapeer	Hollier	S. W. Williams
Lennon	Dort	W. L. Cozadd
Litchfield	Overland	F. A. Sackett
Marquette	Packard	Cloverland Auto Co.
Middleton	Dodge	Reynolds & Bolyard
Middleville	Dort	L. Mastenbrook
Morley	Dort	J. B. Pettie
Newaygo	Studebaker	C. & W. Christensen
New Lathrop	Dort	Poyer & Wood
Niles	Dort	A. Gregg
Owosso	Dort	Owosso Auto Co.
Pigeon	Dort	Leipprandt Bros.
Port Austin	Ford	R. Cartwright
Portland	Ford	S. T. Johnson
Reed City	Ford	G. W. Stanard
Rockland	Dort	C. C. Dougherty
Three Rivers	Dort	D. C. Brady
Unionville	Dort	K. V. Mott
Vassar	Dort	J. H. Gorham
Vermontville	Ford	J. H. Gorham

MINNESOTA

Gonvick	Ford	Leslie Reimer
Lanesboro	Dodge Bros.	Christianson & Lund
Hayfield	Chevrolet	Louis Aarhus
Parkers Prairie	Overland	Sparks & Liljegen
St. Paul	Pathfinder	Pathfinder Sales Co.

NEVADA

Reno	Chalmers	Corecco Bros.
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NEW YORK

Albany	Dort	Utterback-Gleason Co.
Binghamton	Dort	New York Sales Co.
Ruffalo	Dort	A. F. Winegar
Elmira	Dort	Davis & Roberts
New York	Dort	E. J. Friedland
Watertown	Dort	G. H. Baltz

NORTH DAKOTA

Place	Car	Dealer
Donnybrook	Maxwell	Aurelia Hdwe. & Imple. Co.
Fullerton	Cornelian	F. W. Teichmann

OHIO

Akron	Chandler	Beynon Motor Sales Co.
Athens	Franklin	C. H. Welch
Basil	Bulck	B. C. Schride
Cleveland	Saxon	The Loveland Co.
Cleveland	Dort	Ris Motor Car Co.
Groveport	Bulck	Frank Powell
Grove City	Bulck	Thomas & White
Hilliards	Bulck	LeRoy Dobyns
Spratt	Dort	G. H. Gillogly
Toledo	Dort	Gamble Motor Car Co.
Westerville	Bulck	C. J. McIntyre
Zanesville	Franklin	L. K. Brown

PENNSYLVANIA

Butler	Dort	Citizens Motor Car Co.
Fayette City	Dort	J. P. Slotterbeck & Son

SOUTH DAKOTA

Bristol	Ford	McAllen & Knott Bros.
Bristol	Overland	McAllen & Knott Bros.
Bristol	Studebaker	McAllen & Knott Bros.

TENNESSEE

Dickson	Maxwell	Standard Motor Co.
Franklin	Maxwell	Franklin Auto Co.
Hartsville	Maxwell	C. A. Hammond
Lawrenceburg	Maxwell	Lawrenceburg Motor Co.
Murfreesboro	Maxwell	Elam & McCollough
Portland	Maxwell	J. E. Kerley & Sons
Warner	Maxwell	Middle Tennessee Auto Co.
Knoxville	Paige	Cadillac Sales Co.
Nashville	Paige	Nashville Motor Car Co.

WASHINGTON

Davenport	Paige	Field & Co.
Edwall	Paige	F. T. Larrabee & Co.
Ritzville	Paige	M. Haight

WISCONSIN

Baraboo	Studebaker	Baraboo Motor Car Co.
Beloit	Dort	J. F. McKearn
Campbellsport	Ford	Glenn Hill
Clinton	Chalmers	A. C. McCommes

Motor Car Securities Quotations

No quotations for the corresponding date in 1914 are available because of the closing of the Stock Exchange due to the foreign war situation.

	Oct. 2, 1915	Bid	Asked
Alax-Grieb Rubber Co., com.	101	101	101
Alax-Grieb Rubber Co., pfd.	101	101	101
Aluminum Castings, pfd.	101	101	101
Chalmers Motor Co., com.	101	101	101
Chalmers Motor Co., pfd.	101	101	101
Firestone Tire & Rubber Co., com.	101	101	101
Firestone Tire & Rubber Co., pfd.	101	101	101
General Motors Co., com.	101	101	101
General Motors Co., pfd.	101	101	101
B. F. Goodrich Co., com.	101	101	101
B. F. Goodrich Co., pfd.	101	101	101
Goodyear Tire & Rubber Co., com.	101	101	101
Goodyear Tire & Rubber Co., pfd.	101	101	101
International Motor Co., com.	101	101	101
International Motor Co., pfd.	101	101	101
Kelly-Springfield Tire Co., com.	101	101	101
Kelly-Springfield Tire Co., 1st pfd.	101	101	101
Kelly-Springfield Tire Co., 2nd pfd.	101	101	101
Maxwell Motor Co., com.	101	101	101
Maxwell Motor Co., 1st pfd.	101	101	101
Maxwell Motor Co., 2nd pfd.	101	101	101
Miller Rubber Co., com.	101	101	101
Miller Rubber Co., pfd.	101	101	101
Packard Motor Co., com.	101	101	101
Packard Motor Co., pfd.	101	101	101
Paige-Detroit Motor Car Co., com.	101	101	101
Peerless Motor Car Co., com.	101	101	101
Peerless Motor Car Co., pfd.	101	101	101
Portage Rubber Co., com.	101	101	101
Portage Rubber Co., pfd.	101	101	101
Regal Motor Co., pfd.	101	101	101
*Reo Motor Truck Co., com.	101	101	101
*Reo Motor Car Co., com.	101	101	101
Stewart-Warner Speed Corp., com.	101	101	101
Stewart-Warner Speed Corp., pfd.	101	101	101
Studebaker Corp., com.	101	101	101
Studebaker Corp., pfd.	101	101	101
Swinehart Tire & Rubber Co.	101	101	101
U. S. Rubber Co., com.	101	101	101
U. S. Rubber Co., 1st pfd.	101	101	101
White Co., pfd.	101	101	101
Willis-Overland Co., com.	101	101	101
Willis-Overland Co., pfd.	101	101	101

*Par value \$10; all others par value \$100.
*Extra dividend.

Place	Car	Dealer
Columbus	Chalmers	Lien Garage
Cuba City	Chalmers	Fiedler & Jaunsell
Eau Claire	Allen	Murphy & Costello

Coming Events

*Indicates sanction by A. A. A.

October 7.....	Grand Rapids, Mich. Convention of the Garage Owners' Association of Michigan.
Oct. 8-9.....	Peoria, Ill., Convention of Garage Owners' Assn. of Ill.
Oct. 9.....	New York—Speedway race meet, Sheephead Bay Speedway Corp. (Postponed from Oct. 2.)
Oct. 9.....	Indianapolis, Ind.—100-mile Invitation Race, Motor Speedway.
Oct. 11.....	Kansas City, Mo., Annual Trade Tour Kansas City Motor Car Dealers Assn.
Oct. 16.....	Chicago—Speedway race meet, Speedway Park Association.*
Oct. 18-19.....	Cleveland, O.; Hotel Statler; Sixth Annual Convention, Electric Vehicle Assn. of America.
Oct. 20-22.....	Excelsior Springs, Mo., quarterly meeting National Assn. of Automobile Accessory Jobbers.
Oct. 25, 26, 27.....	Columbus, O.—State convention; Columbus Garage Owners' Association.
Nov. 20.....	Phoenix, Ariz., 150-mile track meet.

THE SHOW CIRCUIT

Oct. 2-9.....	Cincinnati, O.; Show, Music Hall; Automobile Dealers Association.
Oct. 3-9.....	Kalamazoo, Mich., Prosperity Week, Kalamazoo Auto Dealers Assn.
Oct. 4-9.....	St. Louis, Mo., ninth annual show, St. Louis Automobile Manufacturers' and Dealers' Assn.
Oct. 4-14.....	Wichita, Kan., show, Wichita Auto Dealers' Assn.
Oct. 6-16.....	New York City; Ninth Annual Electrical Exposition and Motor Show at Grand Central Palace.

Feb. 14-19.....	Des Moines, Ia., Seventh Annual Show; Des Moines Automobile Dealers Assn; Coliseum.
Oct. 16-23.....	Pittsburgh, Pa., Eleventh annual show, Motor Square Garden, Automobile Dealers Assn. of Pittsburgh.
Oct. 17-18.....	San Diego, Cal., Show at Exposition.
Oct. 17-31.....	Dallas, Tex.; Show, State Fair
Oct. 18-25.....	Troy, N. Y., show, Armory; Troy Automobile Dealers' Assn.
Nov. 1-3.....	Pasadena, Cal.; show; Hotel Green. Walter Hempel.
Nov. 12-20.....	Providence, R. I., Show, Automobile Dealers Assn.; State Armory.
Nov. 22-27.....	Binghamton, N. Y.; Show, Binghamton Automobile Dealers Assn.; State Armory.
Dec. 31-Jan. 8...	New York, N. Y., Sixteenth Annual National Automobile Show; National Automobile Chamber of Commerce; Grand Central Palace.
Jan. 8-15.....	Philadelphia, Pa., show, Philadelphia Automobile Trade Assn.
January 22-29...	Chicago, Ill.—Show; National Automobile Chamber of Commerce; Coliseum and First Regiment Armory.
Jan. 29-Feb. 5...	Minneapolis Winter Show; Minneapolis Automobile Trade Assn., National Guard Armory.
Feb. 7-12.....	Kansas City, Mo., Show, Kansas City Motor Dealers Assn., Convention Hall.
Feb. 15-20.....	Omaha, Neb., 10th annual show, Omaha Automobile Show Assn.
March 4-11.....	Boston, Mass.—Fourteenth Annual Show; Boston Auto Dealers Assn.; Boston Commercial Vehicle Assn.
Sept. 21-24.....	Cleveland, O.—Convention, Carriage Builders National Assn.

MOTOR WORLD

JOBBERs , DEALERs AND GARAGEMEN

Volume XLV
No. 2

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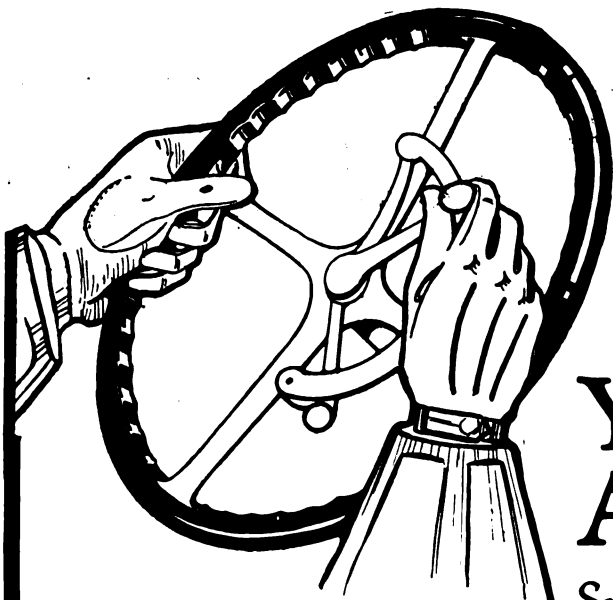


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Overland
TRADE MARK REG.

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KNIGHT
Sleeve Valve Motor

We Are Working Night And Day To Build And Deliver Cars For You

During the three months ending June 30, 1915, the Overland plant produced and sold 20,791 automobiles.

During the same period the *combined* production and sales of the two nearest competitors *together* was 21,534 cars.

In other words, people bought about *as many Overlands* as they purchased of *any other two* kinds of automobiles of similar or larger size.

Overland production for that quarter (70½ working days) averaged 295 cars per day.

Now it is averaging 630 cars per day.

Production in such quantities requires an enormous plant.

But with a plant adequate to such production, the cost per car is less, and the workers attain higher skill because each man's work is more highly specialized, and constant repetition of his own special operation makes him more expert.

And as lowered cost makes possible *lower prices*, so also the higher degree of

specialization makes possible *higher quality*.

For these reasons we are able to produce *better* automobiles and sell them for *less* money.

That is the meaning there is for you in the continuous enlargement of this plant.

Here are the buildings of the Toledo factories only as seen as they appeared last June. Then they contained 79 acres of floor space.

Additional buildings now under construction bring the total floor space up to 103 acres, or 4,486,680 square feet.

Other factories of The Willys-Overland Company contain 29.6 acres of floor space—a total for all plants of 132.6 acres, or 5,752,760 square feet.

The demand for Overlands is giving employment in the Toledo plant alone to 11,600 men—in all plants to 16,925 men.

Here in Toledo we are working night and day to build and deliver Overland cars to meet this great demand.

"Made

in

U. S. A."

Catalogs on request. Please address Dept. 547.



The Willys-Overland Company, Toledo, Ohio

MOTOR WORLD

Vol. XLV

New York, U. S. A., Wednesday, October 13, 1915

No. 2

The New Spirit Is Born

Garagemen in Two Conventions Hold up Mirror to Their Own Shortcomings and Realization Brings Desire for Betterment

GARAGE organization, better business, clean garage conditions, greater profits and a general uplift of the whole garage trade was given an impetus last week greater than it has ever received before. Results should come. They are bound to come.

The impetus comes from two conventions: that of the Garage Owners Association of Michigan in Grand Rapids, Thursday, October 7, and of the Garage Owners Association of Illinois in Peoria, Friday and Saturday, October 8 and 9.

These conventions were meetings such as were never held before. Swinging away for the moment from the questions of how to get greater profits by cheaper buying, the convention got right down to the question of the conditions that prevail in the garage trade and what they mean.

At Grand Rapids, F. A. Bean laid out cold facts to the effect that dirt, slovenliness and poor methods are the cause of high insurance rates. At Peoria, Jud S. Joslyn showed why so many garages fail through not knowing much of anything about their businesses.

Many other speakers hit upon the same subjects. The theme of the conventions was: Clean up! Be Better Business Men!

Abuses that exist were discussed, but the talk often turned back to the basic and fundamental conditions; these, many speakers said, must be remedied before much of anything can be accomplished.

And the two conventions were filled with an enthusiasm that has not characterized previous meetings. There was vim and fire! The spirit must spread. It will spread! The men at the conventions announced their intentions of going home, out into the field, and working for better conditions in the garage trade and greater organizations. There have been numerous garage conventions, but never any like these in spirit and import.

The whole situation is easily and best summed up in these few words: The garagemen have come to a realization of the true situation and have set out with determination to bring about new conditions.

—A complete report of the convention in Peoria and Grand Rapids appears on the following pages

"If You Don't Consider Costs, You'll Fail"

Joslyn Tells Convention in Peoria Some Striking Truths

By Ray W. Sherman

PEORIA, ILL., October 9—Failure to consider costs causes failure in business, said Jud S. Joslyn, Rockford, before the convention of the Garage Owners Association of Illinois today. Bankers will loan money on ability and a cost system, but they will not give consideration to the business that slips along slackly in the rut of don't know.

His address cited instances which are common practice in the trade—and he showed their fallacies. There was keen attention while he went into the story of these inner workings of the successful garage business, and there were thoughtful faces. The major portion of his address follows:

Not Enough Experience

"The trouble, I believe, with most of us in this business is," he said, "that we have not been able to keep up with its rapid growth. Too many of us have graduated into it from the machine shop without having had enough business experience. Illinois has registered this year over 150,000 cars—which means the investment of about 150 millions of dollars, and an annual upkeep expense of \$30,000,000 per year figuring only \$200 per car, which I believe is a low estimate. There are about 1,000 garages in the State of Illinois, or \$30,000 worth of business for each one of us for the maintaining of these cars.

"Up to August 26, 1915, we have exported cars valued at \$60,254,633 and parts valued at \$7,000,000 more. Only a few years ago there were no cars in Illinois and none to export. These figures show that we are not in a piker business, but one of volume enough to make us hold up our heads, clean up our garages and wash up our hands.

"The up-to-date banker now recognizes us as real business men and it is up to us to make good. I have found by talking with grocers, dry goods men, hardware men, shoe dealers, and men in other lines that they expect to, and do, make about 10 per cent net on the total volume of business done per year. This amount of profit is above interest on money invested in the business, rent, taxes and all other business expenses, and salary paid yourself, which salary should be as much as you could earn by managing someone else's business or in selling goods on the road.

"If it will not pay that or you do not know how much, or why it does not,



SOME OF THOSE WHO ATTENDED THE PEORIA CONVENTION—1, Mr. Young, Plow City Garage, Moline, Ill.; 2, Guy C. Hawkins, Washington Automobile Supply Co., Washington, Ill.; 3, Mrs. Raymond E. Gardner, Washington, Ill.; 4, A. A. Whiting, Rome Soap Co., Chicago; 5, Charles W. Dull, chairman Peoria Convention Bureau; 6, Dwight B. Caruthers, Bushnell, Ill.; 7, Harry Salvat, Fashion Automobile Station, Chicago, Ill.; 8, Mrs. George H. Rinkenberger, Washington, Ill.; 9, Raymond E. Gardner, Washington Automobile Supply Co., Washington, Ill.; 10, E. F. Chauncey, Motor Body & Trimming Co., Chicago; 11, Louis Corrington, Empire Tire Co., Chicago; 12, C. A. Christ, Hyde Park Hotel, Chicago; 13, Frank Greussell, Rockford, Ill.; 14, W. L. Ham, Granville Garage, Granville, Ill.; 15, Mr. Mitten, Electric Appliance Co., Chicago; 16, R. H. Broadus, Granville Garage, Granville, Ill.; 17, R. E. Beedee, secretary, Tri-City Auto Trades Assn., Davenport, Ia.; 18, L. W. Ham, Granville Garage, Granville, Ill.; 19, J. C. Thorpe, Urbana, chairman, Car Dealers' Division; 20, H. E. Halbert, president, Chicago Garage Owners' Association; 21, L. C. Steers, secretary, Garage Owners' Assn. of Mich.; 22, C. B. Williamson, C. B. Williamson Corp., Rockford, Ill.; 23, H. M. Dewey, Dewey & Co., Plano, Ill.; 24, C. Weidmaier, Weidmaier Garage Co., Chicago; 25, Robert Bland, president, Associated Garages of America; 26, L. S. Currier, Currier Auto Co., Detroit; 27, C. E. Swain, Peninsular Garage, Detroit; 28, S. L. Seeman, secretary, Iowa Retail Auto Dealers' Assn., Des Moines; 29, W. B. Taylor, Rockford, president, Garage Owners' Assn. of Ill.; 30, G. A. Wallace, Browne & Wallace, Chicago; 31, Mrs. G. A. Wallace, Chicago; 32, Mrs. L. S. Currier, Detroit; 33, Miss F. Seline, Standard Garage, Rockford, Ill.; 34, W. H. Williamson, Williamson Motor Co., Rockford, Ill.

YOU NEED A COST SYSTEM. I do not mean a cheap so-called one that will only be a fooler to you and get you into trouble because of fooling you. I mean an honest-to-God-one that will cost you some money to install and maintain, and that will pay a big profit on this investment, and I want to impress it on your mind that your cost system is an investment and not an expense. Get one that will look good to your banker and prove better for you.

System Must Fit Business

"Don't misunderstand me that we all need as much cost system as some of us do, or that a small business needs as much as a larger one. I would not put in as comprehensive a system for a business of \$25,000 per year as I would for one of \$100,000 or \$200,000 per year, but I would put in one and maintain it, so that I could, by its aid and guidance, build that \$25,000 business up to \$100,000 or \$200,000 and better. And as the business increased and could afford it, I would expand the cost system so it could take care of the larger business and pay me larger returns from it.

"I know of another man who owns his own building, valued at and fully worth \$60,000. This man told me some time ago that he made last year a net profit of \$3,500. He also told me that he paid himself no salary and charged the business with no rent. I ask you, gentlemen, if you believe he made any money? Let us look into this: \$60,000 at 6 per cent interest and 3 per cent depreciation is 9 per cent, or \$5,400 rent. The man has ability and should be able to earn at least \$3,000 per year salary, both items

being directly chargeable to the business. Deducting the interest and salary, or \$8,400, from the \$3,500 profit makes it look as though he was losing \$4,900 instead of making \$3,500 as he thought. When his father stops furnishing him money he will wake up and hire a man to show him a monthly profit and loss statement, and the proper theory of accounting, and will then quit hurting himself, and hurting you and me.

"If you are not blessed with money enough to at all times handle your business, and I suppose there are such here, and you want to borrow at the bank, how do you go about it? If you are lucky enough to have any securities you may put them up with the banker, but if not you have to talk to him, you have to get his confidence, you have to show him you have ability.

Glad to Loan on Ability

"Did it ever occur to you that a banker would be glad to loan you money on your business ability if you had any means of proving you had any? A proper cost accounting system will prove it, if you have any, and your banker will be glad to loan you money on it as proof. In other words, it will at once gain your banker's confidence for you.

"A friend of mine who is poor and has nothing on which to borrow except his business ability and his cost system, as the proof of it, recently went to pay up a large loan. The banker said to him: 'You are making money and I know it from your cost records. I would rather you keep the money than pay the note. I like to loan money to men who know what they are doing.' Gentlemen, it was

Illinois Association Gets New Life Lease



40, Mrs. L. J. Theiss, Rockford, Ill.; 41, Miss Kate Gunnell, 518 Garage, Detroit; 42, Jud S. Joslyn, Joslyn Auto Co., Rockford, Ill.; 43, Mrs. C. L. Turner, Peoria, Ill.; 44, Nate Jacobs, Newberry Motor Service Co., Chicago; 45, Anna Powers, Peoria, Ill.; 46, L. J. Theiss, Main Garage, Rockford, Ill.; 47, E. J. McGuirk, secretary, Garage Owners' Association of Ill.; 48, John B. Finucan; 49, Marie O'Connor, 201 Seventh St., Peoria, Ill.; 50, B. F. Daube, Willard Garage, Chicago; 51, Mr. Murphy, Newberry Motor Service Co., Chicago; 52, Emma Moutier, Peoria, Ill.; 53, L. C. McPherson, Wilson Avenue Garage, Chicago; 54, Milton Davis, Pennsylvania Rubber Co., Chicago; 55, Charles L. Turner, Turner Garage, Peoria, Ill.; 56, B. F. Campbell, Kenwood Garage, Chicago; 57, Paul R. Clements, Rossville, Ill.; 58, Charles Kleinfelder, Hayes Avenue Garage, Chicago; 59, F. E. McCall, secretary, Asso-

ciated Garages of America; 60, H. J. Macfarlane, Chicago; 61, Frank Roderus; 62, Mr. Ward, National Carbon Co., Chicago; 63, D. F. Engel, Standard Oil Co., Chicago; 64, Wm. Jones, Jones Fashion Garage, Chicago; 65, F. E. Carlson, proprietor, Standard Garage, Rockford, Ill.; 66, J. M. Kilgallon, Texas Co., Chicago; 67, W. G. Gibson, Kimbark Garage, Chicago; 68, Mrs. P. C. Rust; 69, Arch E. Hoffman, Danville, Ill.; 70, P. C. Rust, Motor World; 71, Mr. Holt, Electric Appliance Co., Chicago; 72, M. T. Peterson, Peterson Garage, Chicago; 73, Ray W. Sherman, Motor World; 74, Fred J. Poshard, Poshard Garage, Peoria; 75, H. G. Williams, Northwestern Garage; 76, Edw. Conrad, Conrad Motor Co., Eureka, Ill.; 77, George H. Rinkenberger, manager, Washington Auto Supply Co., Washington, Ill.; 78, W. W. Ingram, Ingram Motor Car Co., Springfield, Ill.

only a few years ago that that man was unable to borrow any money because neither he nor anyone else could tell whether his business was making or losing money.

"Every fair-minded man is willing you should make a profit, but he does not want to be stung. How are you to know what a fair charge is so as not to sting him or yourself? Only by having a cost system to show costs and to that cost adding a fair profit. The man who kicks on a fair profit to the seller is not a desirable customer, and he probably kicks on any bill just on general principles. He then goes out and tells how he stung the garageman.

Cost System Inspires Confidence

"We who have cost systems find that when a man complains about a bill that, by showing and telling him about the costs and how they are arrived at that in nearly every case he is satisfied to pay and not complain and that he comes again because it gives him confidence in us.

"Just a word now about storage rates. I cannot pay expenses at 50 cents per night for transients and I don't believe anyone can. It is like the summer hotel business. You must make your year's profit in a few months. You don't get transient business the year around, but you do pay rent for twelve months.

"Here are some actual figures on storage for March, April and May, charges being 50 cents per night. Cost was \$507. Sales were \$454, showing a loss of \$53 for three months or \$17.66 per month. In June the prices were raised to 75 cents per night. Sales for June and July were \$506. Costs were \$350, showing a profit

of \$156, or \$78 per month. Had the storage been sold at the old price of 50 cents the sales would have been but \$337, showing a loss of \$13, or \$6.50 per month.

What to Figure in Expense

"All of the following items must be taken into account in figuring expense: Rent, light, heat, taxes, depreciation, fire insurance, non-productive labor, liability insurance, power, freight, tools, salaries, office expense, commissions, advertising, free service. Many of you are familiar with this, but for the benefit of any who are not I want to explain. Each department should be charged with its fair part of the whole. There are several methods of splitting overhead and we have found an arbitrary one seems to be best suited to the garage business on account of its very many lines of business herded under one head or roof. We have tried many ways and like best to figure the floor space, interest on average investment as near as possible, the office expenses needed in the department, and the estimated time of all executives, and, of course, all actual time of employees. These totals we split on a percentage basis.

"These figures at the present time in our own case are as follows:

Department	Per cent.
"Car repair	20
Tire	15
Battery	8
New car sales.....	15
Used car sales.....	3
Storage	2
Washing cars	2
Stock room	35"

Purchasing Committee Gets Orders on the Floor To Efficiencyze

By Ray W. Sherman

PEORIA, ILL, October 9—The Garage Owners' Association of Illinois took on a brand new lease of life today. Ever since it was formed it has been regarded as the "father of the movement" and has made fair progress, but within the past few months there had been obstacles encountered. There seemed a lack of interest. But all this seems swept away now. Scenes such as never before were beheld on the convention floor, and action taken this afternoon indicates a rising curve in the progress of the organization.

The first rocket went off in the midst of a talk by J. C. Thorpe, of Urbana, on season models and several other things. In the middle of his address C. B. Williamson, of Rockford, got up. The talk had turned to the purchasing committee, now the Association Products Co., Inc., and the revenue that the association could derive and the savings that members could effect through it.

"I want two barrels of oil and a dozen sponges," asserted Williamson, and I want to put in my order right now." With that the floor was held by both men. Williamson, hitherto an outsider as a supporter of the products company, then assumed the role of an auctioneer. Before he had ended his half-hour on the floor he had sold oil, greases, sponges and chamois enough to bring in \$200 to the association and save \$400 to the members.

Ways and Means Committee

There had been reported a considerable shortage in the treasury of the association, and as this discussion was closing President W. B. Taylor said he anyway had just been about to appoint a Committee on Ways and Means to act as a business systematizer and efficiency expert upon the association itself and that he named C. B. Williamson, J. C. Thorpe and H. E. Halbert, the latter chairman of the purchasing work.

Analysis of the situation revealed great possibilities for such a committee. Illinois has many good garagemen. The association has always been strong, but has had lapses of interest. This committee, which it is expected Michigan will duplicate, is the first step of its kind named by any of the organizations or garagemen. After a campaign on cost systems, accounting and better business, the association has decided to apply to itself these same business methods.

It was also recommended that one

good man be selected in each town not now represented in the association and that he be admitted free and asked to help boost the organization work in his locality.

Protest Against Makers Maligning Garages

PEORIA, ILL., October 9—The garagemen of Illinois today entered formal protest against what they term the unjust action of certain manufacturers. This action consisted of the passage of a resolution identical with one passed Thursday at Grand Rapids by the Michigan association.

This resolution cites that certain manufacturers are casting a stigma upon the garage trade and are endeavoring to build up in the mind of the car owner a prejudice against the garageman, the contention of the manufacturer being that the garageman is incompetent. While it is not incorporated in the resolution the garagemen assert that it is their belief that the manufacturers are anxious that the service establishments of the branches and dealers get all the repair work.

The garagemen contend that they are capable of doing good repair work and that the stand of the manufacturers is unjust. It was decided to send a committee to the manufacturers to ascertain the reasons for the alleged actions and to endeavor to arrive at a better understanding. From the statements of leaders in both the Illinois and Michigan associations it seems that there are two or three manufacturers who are claimed to be the principal offenders.

One garageman, as an example, states that he has trouble getting parts to do work promptly. He says he has found that he was purposely held up in this way by the factory's branch service manager.

Illinois Purchasing Committee Results

PEORIA, ILL., October 8—The Association Products Co., which is the incorporation of the purchasing committee of the Garage Owners Association of Illinois, has, through the efforts of Chairman H. E. Halbert, accomplished much.

As a starter, oil samples, Halbert reported today at the convention, were secured of 33 oils. These were numbered and tested by a reputable chemist. It was discovered, in the most flagrant instance, that one garageman was paying 35 cents for what painters were buying for 8 cents a gallon. It was said to be a "best Pennsylvania oil." The prices ranged all the way from 18 to 37½ cents.

Following the tests, which were thorough, specifications were adopted and bids asked from oil companies. An oil was adopted and is sold under the association name at a price considerably less than members can secure a good oil for elsewhere.

When the price of batteries was going up the committee notified members and a big saving was effected through prompt quantity purchases.

Three soaps have been adopted after tests. A spark plug order was given and a large saving was effected for members. A Chicago supply house has granted association members an extra 10 per cent and other plans are maturing.

As to the association's attitude toward

the jobber, Halbert stated that there are some jobbers who fail to protect the garageman by selling to consumers at wholesale and that there are other undesirable conditions. When these are remedied, he said, he was in favor of dropping the purchasing work.

In this same connection it was cited that one car maker has been selling cars in the middle west through road men at the wholesale price. Certain tire makers, it is stated, open stores in the down-state cities and sell at cut prices; other makers are extremely fair. Some members expressed considerable feeling against manufacturers and jobbers who ignore the best interests of the garage trade.

Grand Rapids Convention is Badly Flayed Dirt, Lack of Business Methods and General Slovenliness Conditions Association Seeks to Overcome— Remedy in Garagemen's Hands

By R. W. Sherman

GRAND RAPIDS, MICH., October 7—If insurance rates are high, if it is difficult for the garageman to get credit from the banker, and if he has a poor rating with credit agencies, it is largely his own fault. This was the conclusion of a report read today by F. A. Bean, Detroit, chairman of the Committee on Insurance and Banking of the Garage Owners Association of Michigan.

The members of the association today listened to the most scathing indictment of themselves that has ever been made on a garage convention floor. There was not a word as Bean enumerated the long list of undesirable conditions. For a moment after he had finished there was silence; but then there followed long and earnest applause. Drastic as the condemnation had been it was appreciated.

Dirt, uncleanness, inefficiency, lack of business methods and a general slovenliness, he asserted upon investigation, form the principal cause of the conditions the associations are seeking to remedy. But to remedy the conditions the garagemen, he held, must look at home first.

In connection with his report he cited Motor World's campaign for cleanliness as one of the greatest movements ever launched for the benefit of the garage trade. He moved, and it was carried, that the publication be thanked and asked to continue the work. Motor World was also asked to aid in the work by giving publicity to the report.

Practically all of the work of this committee was done by Bean, the chairman, who is also president of the Detroit Garage & Station Operators Association. After the committee was appointed at the organization convention May 22,

Bean wrote to the other six members of the committee and but three replied to his letters. Only one finally agreed to aid in the work. This was F. Morrison, of Sault Ste. Marie.

Bean then began a long series of visits to the offices of insurance men, to banks and to garages. Insurance men told him why rates are high and bankers told him why the garageman is not a desirable credit. This is the main extract from his report:

INSURANCE

"Taking up the insurance question first," the report reads, "I find that the various classes of insurance in which the garageman might and should be, interested are:

- "1. Employes compensation.
- "2. Fire on building and equipment.
- "3. Automobile fire and theft.
- "4. Liability inside and outside of garage.
- "5. Property damage.
- "6. Boiler insurance.
- "7. Plate glass insurance.
- "8. Partnership insurance.

"I also find that nearly all of the principal insurance companies are members of the same association, or, as they term it, a conference. This conference establishes all of the rates, basing them on existing conditions, and they are revised by this conference as these conditions change.

"The rates for partnership insurance, which is a form of life insurance, are based on the laws of mortality and are arrived at from statistics gathered by the various insurance companies. These rates we cannot reasonably expect to see changed. The plate glass insurance rates are also based on statistics and

after carefully examining them and reasons for their adoption, your committee feels that they are equitable. The rates for automobile fire and theft are arrived at in the same manner. Those for fire protection are probably equitable when we consider the large number of owners who never patronize the garage, who allow their motors to become oily and greasy and who keep their cars in barns and other frame buildings when located outside of the fire limits in the city. The reduction of this rate is an issue more for the owners to consider rather than the garageman. The rates for insurance for automobile theft are based on conditions as statistics show them and we can expect no reduction until there is a severe penalty for the theft of a car and that penalty is handed out in every case by the courts.

"Eliminating those we have considered, we have left employees compensation, fire protection on building and equipment, liability inside and outside of garage, property damage and boiler insurance. The rates on these items are also based on conditions as they exist and the garageman is entirely responsible for these conditions and the remedy lies entirely in his hands. After several months of investigation, your committee feels satisfied that if every garageman will do his part the rates for the classes of insurance last named can very materially be reduced, in some cases as much as 50 per cent. The boiler insurance rates will receive only a slight decrease in any event.

"I am enumerating below a partial list of the causes of the high premium rates:

Why Insurance Is Costly

"1. Inadequate fire protection kept in the building.

"2. No pails of sand for use in case of fire.

"3. Fire extinguishers not kept in accessible places.

"4. Fire extinguishers not kept tested and in proper repair.

"5. Gasoline left standing in open vessels.

"6. Leaky gasoline hose.

"7. Allowing employees and customers to smoke in the garage and shop.

"8. Gasoline when kept in the building not in proper tanks, etc.

"9. Work pits left open and unprotected.

"10. Poor electric wiring of building.

"11. Extension cords allowed to become worn and badly soaked with oil.

"12. Emery wheels and other machines not protected by proper guards.

"13. Men are allowed to use grinders, etc., without furnishing goggles and not compelling the use of them when they are furnished.

"14. Electric lights not properly fused.

"15. Air compressors, etc., with fly-

wheels not protected with railings.

"16. Switch boards not protected with railings.

"17. No rubber mats for operators of high voltage charging boards.

"18. High voltage lines and machinery of various kinds not marked with danger signs.

"19. Explosive polishes left uncorked when not in use.

"20. Workmen's lockers allowed to become filled with papers and greasy overalls.

"21. Oily rags and waste, oil and gasoline allowed to lie under cars where backfire of carbureter would cause ignition.

"22. Oily rags and waste not kept in fireproof receptacles.

"23. Floors not kept clean from oil so that they are slippery and dangerous for walking or driving.

"24. Insufficient light for workmen in shops and garages during dark hours.

"25. Runways not kept free from cars.

"26. Air compressors not equipped with safety valves or automatic cutout devices.

"27. Boilers not operated by competent help and kept in proper condition for safety.

"28. Discipline of employees not strict enough; in fact, is considered slack.

"29. Employees allowed to use liquors during working hours.

"30. Drivers who use liquors are allowed to handle cars both on the street and in the garage.

"31. Drivers without state license are allowed to take cars on the streets.

"32. Roller beds, tools, etc., left lying around on the floors, making walking dangerous.

"33. Allowing drivers to drive cars faster than the legal speed.

"34. Allowing outsiders to wander around the garage and be in the shop around the repair work.

"35. Allowing both employees and customers to drive in and out of the building at too great a speed and without sounding warning signal.

"36. Garages not equipped with first aid cabinet or first aid supplies.

"Remember, this is only a partial list of their complaints.

"I have personally visited over thirty garages in the city of Detroit and several in other parts of the state and have found conditions fully as bad if not worse than the insurance men claim.

"I believe this convention will readily appreciate the position of the insurance companies and will agree that both the cause and the remedy for the present high rates are in the hands of the garageman. And while those of use who are operating properly must shoulder the burden of the high premium rate, our only redress in the matter is to educate these others to the proper methods of operation.

BANKING AND CREDITS

"After conferring with the officials of several banks, your committee finds that the general opinion among banks, mercantile agencies and the larger business houses is that the garage is a poor risk for a loan, or for whom to recommend extension of credits.

"The reason for this is that statistics of the Census Bureau of the Department of Commerce and Labor and the mercantile agencies show a greater percentage of failure among garages than any other class of business. The cause is not lack of business, or that the field is overcrowded, but on the other hand, slack business methods, composed of principally the following items:

Fight These Devils!

"1. General poor bookkeeping methods which result in selling service and merchandise at less than cost and causing various other losses.

"2. Poor merchandising methods.

"3. Over-stocking with unsalable merchandise.

"4. Making slow turn-over of stock.

"5. Losses from depreciation of stock from not being properly cared for.

"6. Losses from bad accounts where no credit should have been extended.

"7. Not keeping up collections.

"8. Not discounting bills when due.

"9. Poor discipline of employees.

"10. Places of business not being kept clean and sanitary.

"11. Not carrying enough protection from loss by fire and accident.

"It is perfectly apparent that the only way we can gain the confidence of the banks and reporting agencies is to correct the evils for which we alone are to blame and which no one can remedy but ourselves."

The Order of Business at Grand Rapids

GRAND RAPIDS, MICH., October 7.—The convention formally opened this morning in the ballroom of the Livingston Hotel. Luncheon was served in the cafe. The first session consisted of an address of welcome by Mayor George Ellis and a response by President Glenn L. Orr. Robert Bland, president of the Associated Garages of America, talked on "The Necessity of Garage Organization" and "Running a Garage at a Profit." National Organizer E. J. McGuirk, Chicago, explained "Associated Buying Power." "Cleanliness and Efficiency" were discussed by Ray W. Sherman of the Motor World.

A drive was to have been taken about the city but rain prevented it. A banquet in the evening in the cafe, at which Robert Bland was toastmaster, closed the session.

THE MEN THAT MADE AMERICA'S CLEAN SWEEP POSSIBLE



Gil Anderson, HARRY STUTZ, Tom Rooney

J. Henderson, FRED DUESENBERG, P. Henderson, Ed. O'Donnell

Anderson and Rooney in Stutzes Win Astor Cup at 102 Miles per Hour

Duesenbergs Third and Fifth and Ogren Fourth—Peugeots All Drop Out—Track Faster Than Cars—Nearly 100,000 Spectators

NEW YORK, Sheepshead Bay Speedway, October 9—America triumphed today irrefutably, beyond the possible question of any doubt. Seven foreign cars, piloted by some of the foremost racing drivers of the world, started against thirteen American cars, and the defeat of the foreign contingent, one and all, by an American driver in an American creation will go down into history.

When Gil Anderson flashed his white Stutz over the timing wire after his meteoric dash at the rate of 102.60 miles an hour—faster than any long distance race ever has been run before—he scarcely did the unexpected. He fulfilled the promise of previous races; he merely lived up to the hopes of those who pinned their faith to American designing, American men and American metal. Nor was Rooney's finish in a second Stutz, just 47 seconds later, altogether unexpected, for these Stutz cars have a way of finishing in pairs.

Similarly, the fact that O'Donnell in a Duesenberg and Alley in an Ogren came in third and fourth, the former averaging 95.45 miles an hour and the latter 92.49, may not have been so unexpected. But there was the foreign

contingent to take into account. There were the five Peugeots and the two Delages to be watched. Everyone knew that Resta had a fast car; Mulford's was faster, according to the elimination trials, when he averaged 109 miles an

hour; Aitken soon showed that he could keep pace with the best of them; Wilcox, too, had to be figured on, and there were Oldfield and Limberg in the Delages.

That six of these foreign entries should

TIME AND PRIZES OF WINNERS—TROUBLES OF ALSO RANS

Driver and Car.	Time	M. P. H.	Prize
Anderson, Stutz	3:24:42	102.60	\$20,000
Rooney, Stutz	3:25:29	102.19	10,000
O'Donnell, Duesenberg	3:39:55	95.45	5,000
Alley, Ogren	3:47:03	92.49	4,000
Henderson, Duesenberg	3:47:26	92.31	3,000
Limberg, Delage	4:09:23	84.22	2,000
Haibe, Sebring	Flagged 298 miles		1,400
Vail, Mulford Special	Flagged 274 miles		1,200
Burman, Peugeot	Out 346 m.	Transmission trouble	
Haupt, Duesenberg	Out 240 m.	Disqualified; pushed car	
Aitken, Peugeot	Out 240 m.	Cracked cylinder	
De Palma, Stutz	Out 210 m.	Broken ball bearing	
Le Cain, Pugh Special	Out 156 m.	Clutch trouble	
Rickenbacher, Maxwell	Out 110 m.	Connecting rod	
Resta, Peugeot	Out 104 m.	Connecting rod	
Wilcox, Peugeot	Out 74 m.	Disqualified; pushed car	
Pullen, Maxwell	Out 56 m.	Connecting rod	
Cooper, Stutz	Out 46 m.	Broken valve	
Oldfield, Delage	Out 16 m.	Connecting rod	
Mulford, Peugeot	Out 14 m.	Connecting rod	

be put out before Anderson got the checkered flag was unfortunate. That four failed when the race was only half over is in itself an indication of the tremendous pace at which they were driven and a plainly visible feather in the caps of the American designers who accomplished their downfall.

High Speed Not Predicted

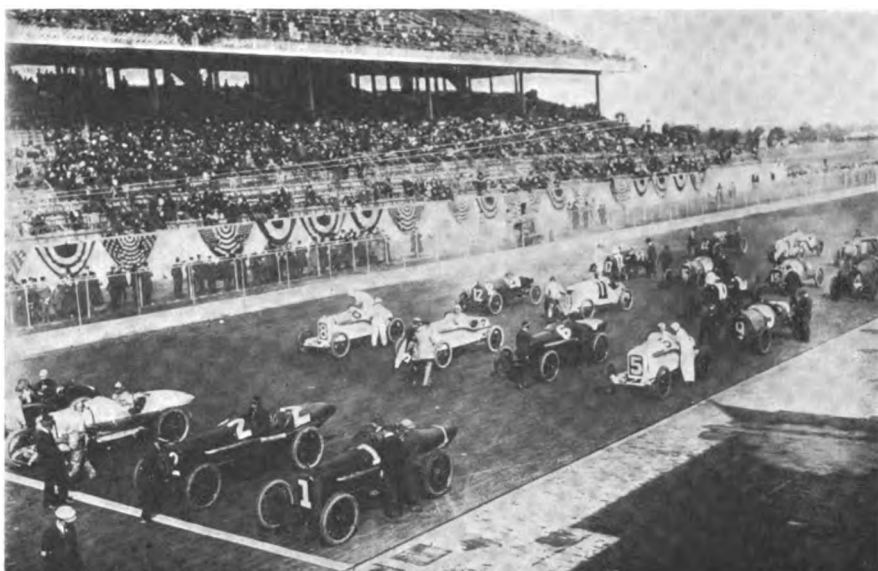
Perhaps the most unexpected feature of the whole race was the record-breaking pace at which Anderson won. For after the track had been completed and the drivers had had an opportunity to test its paraboloid curves it was freely predicted that the mark made by Resta in the recent 500-mile race on the Chicago board speedway might be equalled, though there were few who believed that it would be beaten. It was predicted that the time for one lap would be bettered, and it was. Resta completed his 22nd lap in 1:05, which is at the rate of 110.7 miles an hour. But it was pointed out that in completing a lap on the Sheepshead Bay Speedway the driver must travel further and that because this effect is cumulative, the record for the complete distance would not be broken.

That the smashed record is due in a large measure due to the track and its ease on tires is made plain by a record of the number of casings changed. All of the cars used Silvertown cord tires except Oldfield, who had Firestones, and Alley in the Ogren, who rode on Nassaus. All told, there were just 10 casings changed in the 350 miles of racing as against 43 casings changed in the first 350 miles of the Chicago 500-mile race. Of the eight to finish the Astor cup race only two changed tires. Alley did not make a change and Oldfield went out of the race after completing 16 miles.

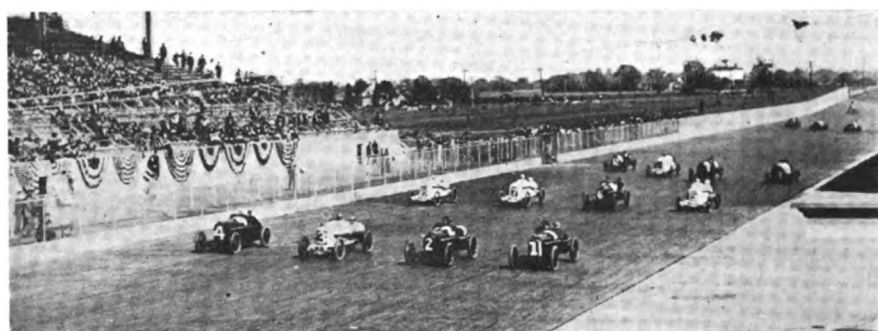
Long before the start of the race, which was set for high noon, the great grandstand and bleachers commenced to fill, and an hour before the cars were sent away there were few bare spots in either stand. The infield parking spaces also were well filled an hour before the start, for there was always something for the spectators to watch. It is estimated that there were 97,000 persons in the great enclosure when Starter Fred Wagner waved the cars away on the start of the preliminary lap.

Resta Leads by Inches

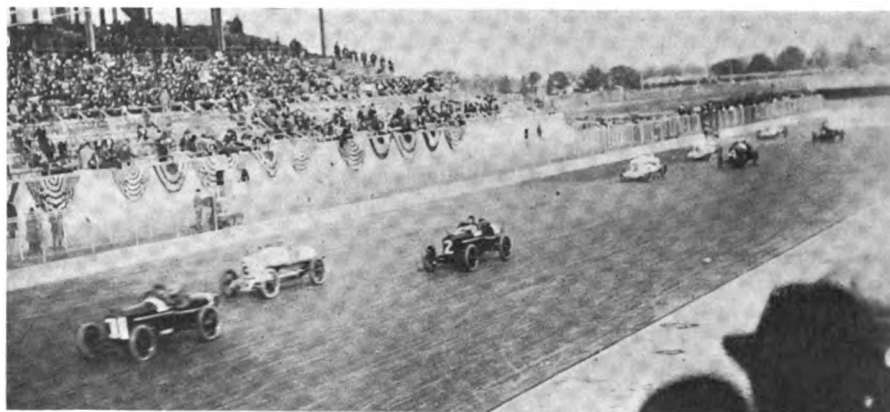
It was a perfect start. The cars were lined up four in a row with Resta in the pole position. At the word from Wagner they all moved away together, and within a moment the raucous rattle of their exhausts was transferred first to the curving banked turn and then to the backstretch in front of the bleachers. During this preliminary lap the cars strung out considerably until the last turn was reached when they bunched



Just before the start with Resta and Aitken in Peugeots, Barney Oldfield in Delage and Burman in Peugeot in first line. The Stutzes and Wilcox's Peugeot are in the second line



It was a perfect start; at the end of the preliminary lap the formation was scarcely changed



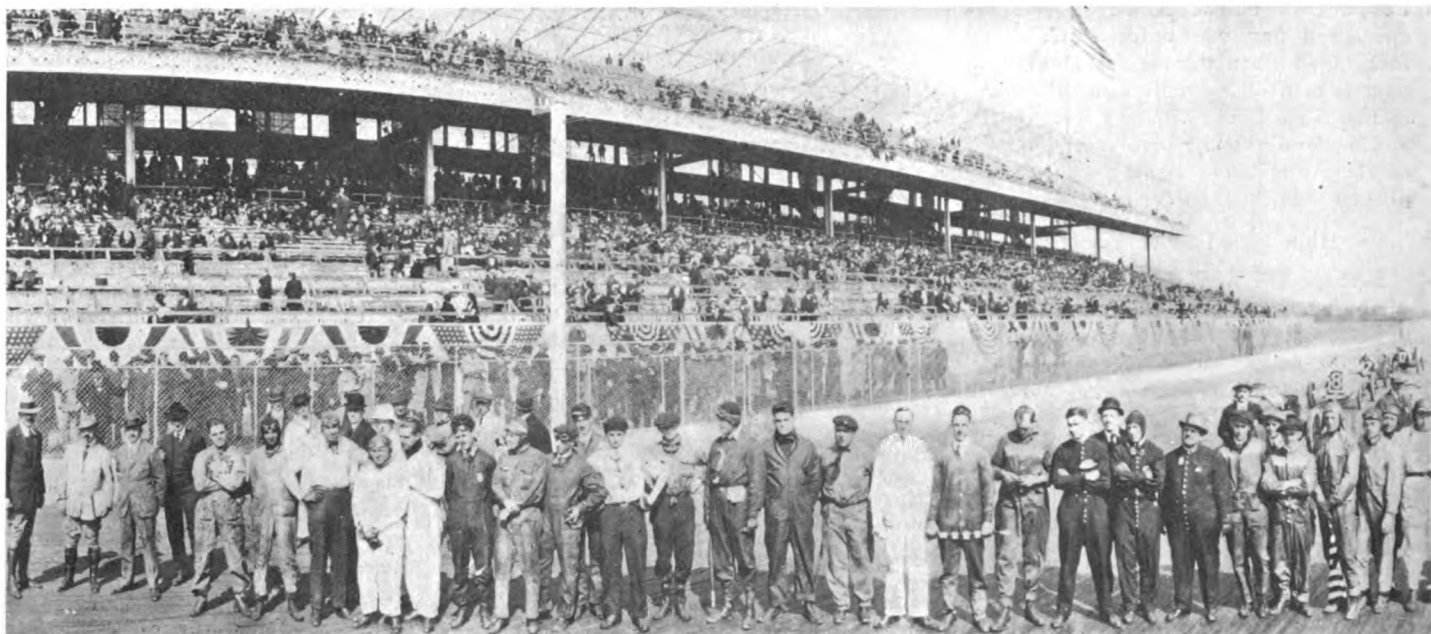
At the end of 9 miles, Resta had nosed out in front, hard pressed by Anderson and Aitken

up together again and came down past the grandstand in perfectly orderly rows. As they plunged over the timing wire, 20 feet pressed 20 accelerators and the pack roared along after the first quartet. As they swept around the first turn with scarcely a break in the formation, they looked like great vari-colored beetles, each scuttling along for all it was worth.

At the end of the first lap Resta was leading by feet, his time being 1:11.7, and close to him was the redoubtable Barney, his Delage going great guns. Next was Earl Cooper, who had started in the second row, and he was followed

by Rooney in another Stutz and Wilcox in a Peugeot. The same formation showed in the second lap, but in the third Johnny Aitken, as if to show that he had lost none of his driving skill in all the time he had been out of racing, had nosed up into second place, the others following in the same order as in the first lap.

The fourth lap was the same, but in the fifth Ralph Mulford commenced to show some of the marvelous speed in his newly imported Peugeot racer, and when the pack passed the wire he had passed Resta and everyone else with the



One of the few times during the day when all the drivers were on an even footing.

exception of Aitken, who had taken the lead by a few feet. At this time so furious had been the pace that Limberg in the Delage had been almost lapped. But that he was driving with his head revealed by a glance at the final times, which showed that of all the foreign cars to start his was the only one to finish.

Resta Way Ahead

In the next lap the leaders passed Limberg, Aitken being first, with Mulford second, Resta third, Burman fourth, Anderson sixth and Rooney seventh.

It was in the next lap, the 8th, that the first elimination occurred. Mulford and the Peugeot, by which he set such stake, rolled into the pits, out with a broken connecting rod, and Resta moved up into second place.

Resta was content to trail Aitken only one lap more and then he went out to open up a gap that would give him a safety zone in which to stop if that should be necessary. In about four laps he had opened a gap of $\frac{1}{4}$ mile between himself and Aitken. In the meantime, Burman, who had been in fifth place, was forced to stop for a right rear tire and lost a lap.

Resta continued to increase the lead he had over the others and at the end of 40 miles he was circling the track all alone, with one bunch, which he was soon to catch, in front of him, and another bunch that he had passed, behind him. Three of the Stutz cars, Anderson, Rooney and Ralph De Palma, were bunched closely in the trailing group. A small blanket would almost have covered them. Aitken had been forced to stop twice in as many laps for right rear tires and so was quite a distance behind.

At the 40-mile mark Resta had suc-

ceeded in opening up a gap of 21 seconds between himself and Anderson, who was next in line. In Speedway language this means about $\frac{3}{8}$ ths of a mile. In the following lap he increased this lead to a full mile and the Stutz pilots could still be covered by a blanket. They ran remarkably steady.

As the 50-mile mark was neared Resta continued to increase his lead over Anderson, and in the 23rd lap the first fatality occurred in the Stutz camp. Cooper, who had been driving consistently, was forced out with a broken valve. This left the possibility of a Stutz triumph to Anderson and Rooney, who were leading the field by a wide margin; and De Palma. Rooney had never before driven in a big race. He was an unknown quantity. But he had a magnificent car under him and up to that time had given an excellent account of his driving ability.

Resta Falls by Wayside

With one of the deadly Stutz cars out, Resta seemed to increase his speed, perhaps with the intent of wearing out either one or the other of the remaining three Stutz cars. But he reckoned without his host, as the old saying has it. For his intentions, if such they were, acted like a boomerang and two laps after he had passed the century mark, he, too, had the cup of defeat forced to his lips. He had lapped both Anderson and Rooney; he had created for himself a safety zone, so to speak. But he must have lapped them a few hundred times to gain enough time to repair the broken connecting rod that put him out.

Between the start and the time Resta quit five more drivers were forced to become spectators. Eddie Pullen drew up at the pits after going 56 miles and the fateful information "connecting rod

gone" was telephoned to the scoreboards. Wilcox stopped, after having run 74 miles, for a minor trouble and was disqualified for pushing his car. The next to go out was Rickenbacher, who was then some three laps behind the leaders. It was a connecting rod in his case, too.

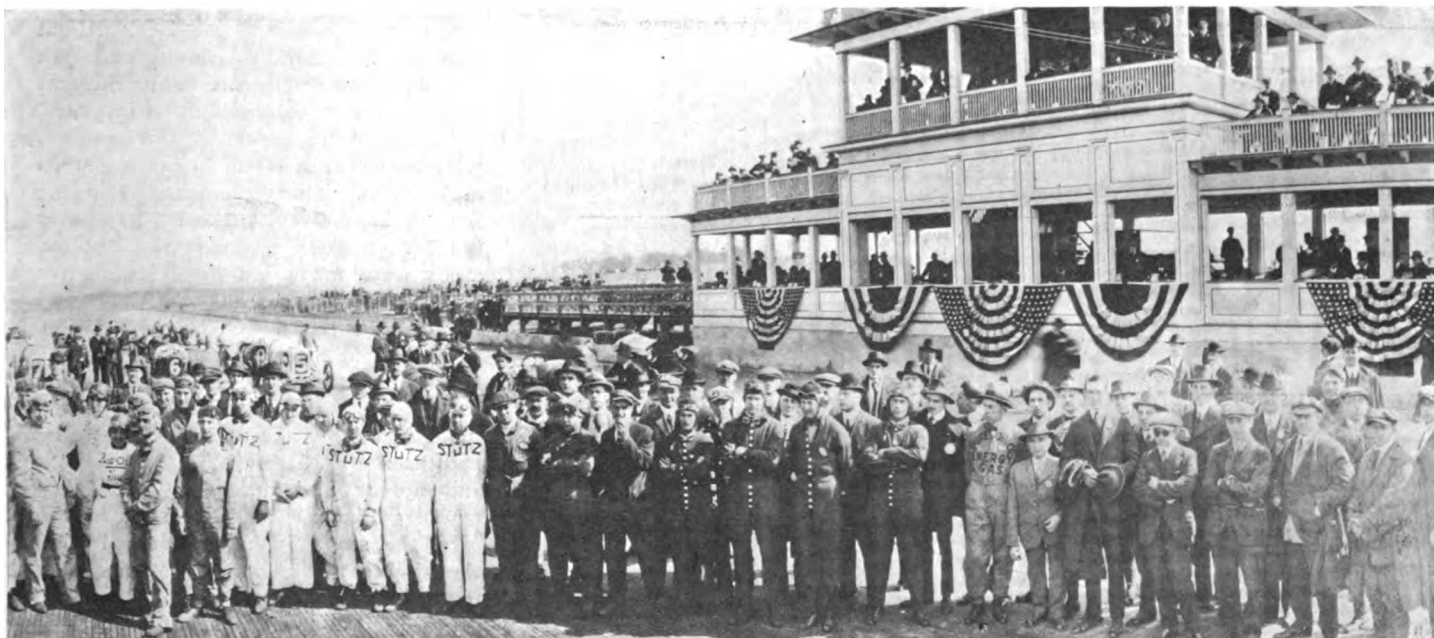
At 140 miles Anderson had moved up into first place, with Aitken second, 46 seconds behind him, Burman third, 17 seconds later, and Rooney fourth, with 9 seconds between him and Burman. Before 116 miles had been run still another driver had been forced out, Jack Lecain in the Pugh Special quitting with a faulty clutch.

From this period on to well past the beginning of the second half of the race there were few changes in the positions of those who remained in the running. At 180 miles Anderson was leading by just 6 seconds, with Aitken driving like the wind and watching for the smallest of small chances to shoot past him. Rooney was just 1 minute back of Aitken, with Burman almost on his tail.

At 200 miles, Aitken had finally succeeded in getting past Anderson and had opened up a gap of 1 minute, which the Stutz pilot viewed with little anxiety. Rooney was 6 seconds behind his teammate and Burman was the same distance behind Rooney. O'Donnell was now in fifth place, though more than 5 minutes in the rear, and De Palma was sixth, 1 minute behind O'Donnell.

De Palma Has Bad Luck

Thus, De Palma was well within striking distance should anything happen to the leaders, but he did not stay there for long. That old jinx that made itself apparent for the first time several years ago in Indianapolis and followed him so relentlessly, found him again as the 210th mile was passed. With every possibility



Lineup of drivers, mechanics and officials just before the start of the preliminary lap

of finishing well within the money, a ball bearing let go and he was forced out.

With only two Stutz cars pitted against them, Aitken and Burman, both in Peugeots, the only ones remaining in the race, set out to wear down the Stutz stamina, and at 220 miles Aitken had a lead over Burman of nearly 1 minute and Anderson and Rooney were running wheel and wheel with Burman. At 232 miles Aitken was compelled to stop for gasoline after his pit attendants had signalled him wildly for several laps. He lost just 30 seconds tanking up and the Stutz nemesis crept that much nearer. At this time it appeared as if Aitken were making his greatest gains on the banked turns. Time and again he would hold his place on the straight-aways only to creep up on the curves.

Aitken Sees His Finish

Aitken's Peugeot had been running beautifully, but to those with an unusually acute ear it appeared now that something was amiss. After several more laps he pulled into the pits in his 240th mile and he and his mechanic began frantically to replace the spark plugs in the two rear cylinders. He had only 6 seconds lead over Rooney when he stopped and that 6 seconds went by quickly. With the plugs finally changed and the car in readiness to start, water suddenly commenced to pour, steaming, out of the exhaust pipe. So Aitken climbed out of his seat again, looked once, and the car was rolled close to the pits, hopelessly out with a cracked cylinder.

But the two Stutz pilots still had Burman with whom to reckon, and according to the look of the scoreboard the reckoning gave evidence of being a hard one. Burman was 1 second behind Rooney, who then took the lead, and

running hub cap to hub cap with Anderson.

For lap after lap now the race settled down into a steady grind. The leaders were so far in advance of those that remained in the race that they had little to fear from them barring some serious trouble. Similarly, between the others in the race there were wide gaps. Here, too, barring serious trouble each was practically certain of the place he occupied providing he could keep going. It was almost a hopeless task for any driver to better his position.

Up to this time Willie Haupt, in one of the Duesenbergs, had been pounding along regularly, though he had lost much time due to stops for water, fuel and oil, to adjust his carbureter and tighten a pump gland. At length he stopped with a broken rocker arm, putting one cylinder out of business. He continued on three cylinders and had covered 256 miles when he again stopped. This time he pushed his car and was automatically disqualified. He was then running in ninth place, being some 32 minutes behind the leaders.

Anderson Forges to the Front

Some idea of the race at this stage may be gleaned from the fact that Aitken, who was leading, was 11 seconds ahead of Rooney, Burman and Anderson, who were running together, 7 minutes ahead of Haibe, 9 minutes ahead of O'Donnell, 13 minutes ahead of Henderson, 14 minutes ahead of Alley and 32 minutes ahead of Haupt.

From this point on there was not a great deal of change in the positions. Anderson took the lead at the end of the 260th mile and was never headed. He and Rooney and Burman were running side by side and led O'Donnell by 10 minutes. This same order was pre-

served until 345 miles had been covered, except that Anderson was leading Aitken by nearly 2 minutes and his teammate by nearly 1 minute.

As he finished his 346th mile, Burman pulled into the pits, and to even the casual observer it was patent that he was out. The look of chagrin that spread over his face as \$5,000 and possibly \$10,000 slipped through his fingers was pitiful.

So, with Burman and his tearing Peugeot up against the rail for good, and all of the others hopelessly in the rear, Anderson and Rooney in the first brigade, and O'Donnell and Allen and Henderson in the second brigade, settled down and breathed easier.

When Anderson crossed the line a winner he was accorded a great ovation, and there was scarcely less hand-clapping and cheering when Rooney flashed by in second place. Then there was a wait of 14 minutes until O'Donnell came home, and another wait of 8 minutes till Alley pounded over the line. Then came Henderson, and Limberg trailed in last, the only driver of a foreign car to finish. Both Haibe and Vail were flagged, the former having covered 298 miles and the latter 274 miles.

Mechanical Troubles Put Many Cars Out

Only Ten Tire Changes—Six Out of Eight Finishers Had Original Tires Intact

BEFORE the race was one-half hour old eight cars had limped into the pits for various repairs. Two were out entirely and others suffered tire and me-

WHEN TROUBLES CAME TO TWO SPEED CAMPS



Cooper's Stutz and Howdy Wilcox's Peugeot lined up at the pits—dead
Just before Aitken knew he was out Resta, the favorite, ingloriously reaches the pits

chanical troubles which showed, even this early in the race, that the grind was to be a matter of endurance.

Not 10 minutes after the race started

Oldfield drove his Delage slowly to its berth and resigned it to the hands of his pit attendants. A broken piston, connecting rod and crankcase made his car

no longer a factor in the race. About 1 minute later Mulford was retired with a broken connecting rod. Thus the first two stops were eliminations of favorites.

As would be expected, tire troubles were the greatest factor in causing stops at the pits. The replenishment of the fuel tanks, however, caused a greater number of stops in the total. But ten stops were made for tires. Stops for gasoline were made fourteen times and for oil ten times. Often these three were done at the same time.

There was surprise that tire trouble should start so soon after the start. Aitken had to make a change before he had been on his way for 20 minutes, and another, 4 minutes later. Mechanical troubles likewise started early in the race, the stops for spark plugs having the greatest total, seven stops being made for this reason.

Carburetor trouble claimed a total of five interruptions, water systems four, valve and valve mechanisms three, connecting rods four, and bearings two. The stops for water system troubles often occasioned work on other parts, a noticeable feature being that water gland leaks on the pumps caused ignition trouble due to the soaking of the high tension wires.

Although speeding at an average of 102.6 m. p. h. Anderson did not have to bring his Stutz to the pits once for tires. His only stop being for gasoline. His teammate only changed one tire and stopped once for gasoline.

O'Donnell was another who did not make a stop for tires. Six of the eight who finished did not change a wheel.

TABLE GIVING TIME AND POSITION OF EACH CAR FOR EACH TWENTY MILES

No.	Car	Driver		Miles: 20	Position	40	Position	60	Position	80	Position	100	Position	120	Position	140
5	Stutz	Gil Anderson	Elapsed time	11:25	4	22:51	3	34:29	1	46:10	1	57:48	3	1:09:32	1	1:21:18
			Time for 20 miles			11:26		11:38		11:41		11:38		11:44		11:46
7	Stutz	Tom Rooney	Elapsed time	11:25	3	22:52	4	34:30	2	46:11	2	57:47	2	1:10:59	4	1:22:38
			Time for 20 miles			11:27		11:38		11:41		11:36		13:12		11:39
9	Duesenberg	Ed O'Donnell	Elapsed time	12:28	10	24:54	11	37:11	8	49:27	8	1:01:25	8	1:13:51	6	1:26:11
			Time for 20 miles			12:26		12:17		12:16		11:58		12:26		12:20
22	Ogren	Tom Alley	Elapsed time	13:00	17	25:50	16	38:44	12	51:42	11	1:04:15	12	1:16:57	9	1:29:42
			Time for 20 miles			12:50		12:54		12:58		12:33		12:42		12:45
16	Duesenberg	P. Henderson	Elapsed time	12:36	12	25:18	12	38:02	10	50:36	10	1:03:01	10	1:15:42	8	1:28:27
			Time for 20 miles			12:42		12:44		12:34		12:25		12:41		12:45
19	Delage	Limberg	Elapsed time	13:09	18	25:51	17	40:55	14	53:59	14	1:06:46	14	1:19:29	12	1:32:16
			Time for 20 miles			13:42		15:04		13:04		12:47		12:43		12:47
14	Sebring	Ora Haibe	Elapsed time	12:59	15	42:52	18	1:11:55	15	1:35:52	15	1:49:58	15	2:09:25	13	2:22:25
			Time for 20 miles			29:53		29:03		23:57		14:06		19:27		13:00
11	Mulford Special	Ira Vail	Elapsed time	12:50	13	25:31	13	38:01	9	50:32	9	1:02:47	9	1:15:19	7	1:27:50
			Time for 20 miles			12:41		12:30		12:31		12:15		12:32		12:31
4	Peugeot	Bob Burman	Elapsed time	12:29	11	24:01	6	35:40	5	47:20	4	58:57	4	1:10:44	3	1:22:29
			Time for 20 miles			11:32		11:39		11:40		11:37		11:47		11:45
15	Duesenberg	Willie Haupt	Elapsed time	13:00	16	25:50	15	38:44	13	51:43	12	1:04:26	13	1:17:58	11	1:30:46
			Time for 20 miles			12:50		12:54		12:59		12:43		13:12		13:08
2	Peugeot	J. Aitken	Elapsed time	11:25	2	24:25	10	35:33	4	48:37	7	59:37	5	1:10:40	2	1:22:03
			Time for 20 miles			13:00		11:08		13:04		11:00		11:03		11:23
20	Stutz	Ralph DePalma	Elapsed time	12:11	7	24:11	7	36:12	6	47:57	5	1:01:22	7	1:13:08	5	1:24:51
			Time for 20 miles			12:00		12:01		11:45		13:25		11:46		11:43
12	Pugh Special	Jack Lecain	Elapsed time	12:51	14	25:49	14	38:43	11	51:44	13	1:04:14	11	1:17:06	10	1:31:05
			Time for 20 miles			13:38		13:34		13:01		12:30		12:52		13:59
10	Maxwell	Ed Rickenbacher	Elapsed time	12:11	8	24:12	8	36:12	7	48:14	6	1:00:09	6	Out 110 mi.	es.	
			Time for 20 miles			12:01		12:00		12:02		11:55				
1	Peugeot	Dario Resta	Elapsed time	11:24	1	22:30	1	35:14	3	46:24	3	57:26	1	Out 104 mi.	es.	
			Time for 20 miles			11:06		13:24		11:10		11:02				
6	Peugeot	Howard Wilcox	Elapsed time	11:28	6	23:15	5	43:18	16	Out 74 mile s.	Disqualified; pushed car.					
			Time for 20 miles			12:27		20:03								
17	Maxwell	Ed Pullen	Elapsed time	12:12	9	24:12	9	Out 56 mile s.	Broken connecting-rod.							
			Time for 20 miles			12:00										
8	Stutz	Earl Cooper	Elapsed time	11:27	5	22:51	2	Out 46 mile s.	Broken valve.							
			Time for 20 miles			11:24										
3	Delage	Barney Oldfield	Elapsed time	Out 16 mil es.	Broken piston and connecting-rod.											
			Time for 20 miles													
18	Peugeot	Ralph Mulford	Elapsed time	Out 14 mile s.	Broken connecting-rod.											
			Time for 20 miles													

No.	Car	Driver	Mechanic	Cylinders	Cast	Bore	Stroke	Cubic Inch Displacement	VALVES		Spark Plugs	Carburetor	Magnetos	Oil	Grease	TIRES			Wheels, Make	Wheelbase	Shock Absorbers	Weight	Meter
									Operation	No.						Make	Front	Rear					
1	Pontiac	Dario Resta	McCarthy	4	Block	3.60	6.67	274	OH shaft	16	K.L.G.	Zenith	Bosch	Oilzum	Dixon	Silvert.	34x4 1/2	35x5	R.W.	106	T.-H.	2400	Boyce
2	Pontiac	J. Aitkin	Becker	4	Block	3.60	6.67	274	OH shaft	16	Oleo	Zenith	Bosch	Oilzum	Dixon	Silvert.	34x4 1/2	35x5	R.W.	106	T.-H.	2300	Boyce
3	Delage	Barney Oldfield	Dashbach	4	Block	3.66	7.09	298	OH shaft	16	Rajah	Claudell	Bosch	Oilzum	Dixon	Firest.	34x4 1/2	35x5	R.W.	104	T.-H.	2250	Boyce
4	Pontiac	Bob Burman	Gable	4	Block	3.65	7.10	296	OH shaft	16	K.L.G.	Zenith	Bosch	Oilzum	Dixon	Silvert.	33x4 1/2	33x4 1/2	R.W.	105	T.-H.	2350	Boyce
	Stutz	Gil Anderson	Scott	4	Block	3.81	6.50	296	OH shaft	16	Bosch	Strom.	Bosch	Oilzum	Dixon	Silvert.	33x4 1/2	33x5	Houk	102	T.-H.	2340	Boyce
6	Pontiac	Howard Wilcox	Rout	4	Block	3.60	6.67	274	OH shaft	16	Oleo	Zenith	Bosch	Oilzum	Dixon	Silvert.	34x4 1/2	35x5	R.W.	106	T.-H.	2300	Boyce
7	Stutz	Tom Rooney	Rocco	4	Block	3.81	6.50	296	OH shaft	16	Bosch	Strom.	Bosch	Oilzum	Dixon	Silvert.	33x4 1/2	33x5	Houk	102	T.-H.	2404	Boyce
8	Stutz	Earl Cooper	Dutton	4	Block	3.81	6.50	296	OH shaft	16	Bosch	Strom.	Bosch	Oilzum	Dixon	Silvert.	33x4 1/2	33x5	Houk	102	T.-H.	2385	Boyce
9	Duesenberg	Ed. O'Donnell	J. Henderson	4	Block	3.75	6.75	297	Verti. rocker	16	Rajah	Zenith	Bosch	Oilzum	Dixon	Silvert.	32x4 1/2	33x5	R.W.	106	T.-H.	2170	Boyce
10	Maxwell	Ed. Rickenbacher	Getz	4	Block	3.75	6.75	298	OH shaft	16	K.L.G.	Zenith	Bosch	Oilzum	Dixon	Silvert.	32x4 1/2	35x5	Houk	105	T.-H.	2202	Boyce
11	Mulford Special	Ira Vail	Wright	4	Block	3.98	6.00	299	Verti. rocker	8	Rajah	Master	Bosch	Oilzum	Dixon	Silvert.	33x4 1/2	33x4 1/2	R.W.	101	T.-H.	2100	Boyce
12	Pugh Special	Jack Locain	Pugh	4	Block	3.98	6.00	299	Verti. rocker	8	Bosch	Master	Bosch	Oilzum	Dixon	Silvert.	33x4 1/2	33x4 1/2	Houk	106	T.-H.	2400	Boyce
14	Sabring	Ora Haibe	Guion	4	Block	3.98	6.00	299	Verti. rocker	8	Rajah	Master	Bosch	Oilzum	Dixon	Silvert.	32x4 1/2	33x5	R.W.	102	T.-H.	2499	Boyce
15	Duesenberg	Willie Haupt	Alexander	4	Block	3.98	6.00	299	Verti. rocker	8	Bosch	Schebler	Bosch	Oilzum	Dixon	Silvert.	32x4 1/2	34x4 1/2	R.W.	106	T.-H.	2120	Boyce
16	Duesenberg	P. Henderson	Johnson	4	Block	3.75	6.75	298	Verti. rocker	8	Rajah	Zenith	Bosch	Oilzum	Dixon	Silvert.	32x4 1/2	34x4 1/2	R.W.	104	T.-H.	2100	Boyce
17	Maxwell	Pullen	Stafford	4	Block	3.75	6.75	298	OH shaft	16	K.L.G.	Zenith	Bosch	Oilzum	Dixon	Silvert.	34x4 1/2	35x5	Houk	105	T.-H.	2267	Boyce
18	Pontiac	Ralph Mulford	Stevens	4	Block	3.60	6.67	274	OH shaft	16	Rajah	Zenith	Bosch	Caster	Dixon	Silvert.	34x4 1/2	34x4 1/2	R.W.	106	T.-H.	2300	Nene
19	Delage	Carl Limberg	Hartman	4	Block	3.66	7.09	298	OH shaft	16	K.L.G.	Zenith	2-Bosch	Oilzum	Dixon	Silvert.	33x4 1/2	33x4 1/2	R.W.	110</			

After Oldfield's Delage and Mulford's Peugeot had been eliminated, Wilcox brought his Peugeot to the pits for water and a right rear tire. He was

[illegible]

Broke n connec ting re d.

forced to make another stop for water 15 minutes later and at this time to change his spark plugs, which were so hot that the points were fused together. Six minutes later a loose magneto wire and irregular firing made him stop again, after which he was eliminated automatically by pushing his car.

Aitken's Peugeot developed trouble in its right tires soon after the start. A right front tire was changed when he had been traveling for 19 minutes, and another, a right rear, was changed when he had been traveling 23 minutes. At 39 minutes he changed another right front and at 43 minutes another right rear. After this he traveled without further tire trouble, but finally when well up in the lead suffered a broken valve and a cracked cylinder.

Spark plug trouble bothered Haibe in his Sebring throughout the race. He stopped after he had been traveling a little over 20 minutes and renewed two plugs. A quarter of an hour after this his water connections developed a leak and he was forced to stop to correct the effects of water on his magneto. This again bothered him half an hour later and then when he had been traveling a little over an hour he stopped for two new plugs and shortly after for three more and some oil. He took on plugs and oil again when he had been traveling for 2 hours and changed two more plugs just before he finished seventh.

A stop for change of plugs was made by Henderson not long after he had traveled three-fourths the distance. This was his second stop, as when he had just reached the half-way mark he took on gasoline and oil. Limberg changed all his spark plugs while taking on gasoline and making a carbureter adjustment just after Henderson had changed his plugs.

Iva Vail went through the greater part of the race with a trouble which threatened at any moment to become serious. This was a cracked exhaust sustained after he had been on his way 1 hour and 40 minutes and had traveled half the 350 miles. He had a cracked exhaust manifold between the first and second cylinders, but this did not prevent his continuing the race and finishing in eighth place. Vail's other troubles were a leaky pump gland, a carbureter adjustment and a dirty carbureter strainer.

The third car to drop out in the race was Pullen's Maxwell, which had a broken connecting rod and as a result a broken crankcase. Resta's second stop was his last, as he was eliminated when the race was an hour old by a broken connecting rod. Previous to this he had made one stop for a right rear shoe. Only 2 minutes after Resta went out a burned-out bearing eliminated Rickenbacker and his Maxwell, which had not previously pulled up to the pit wall.

A genuine sigh of sympathy went up from the stands when Bob Burman,

after running a magnificent race for 346 miles and having but two laps to go to finish, was forced to drop out with a loose flywheel which put his clutch out of commission. Burman had not made a stop before this time except to take on gasoline and oil after he had traveled nearly 300 miles.

Additional photographs of the Astor Cup Race appear on pages 36 and 37.

Willie Haupt nearly came in for some prize money with his Duesenberg car, but a loose carbureter caused him to push his car when he was well along toward the end of his run. He had not been making many stops before this, as he did not draw up to the pits until more than 2 hours after the race had started, when he took on gasoline, water and oil. Shortly after this a broken inlet rocker arm reduced his number of available cylinders to three. Again he made a stop for a right and left rear tire and then another for a carbureter adjustment which was the forerunner of the trouble which finally put him out when he started to push his car with its loose carbureter and was disqualified.

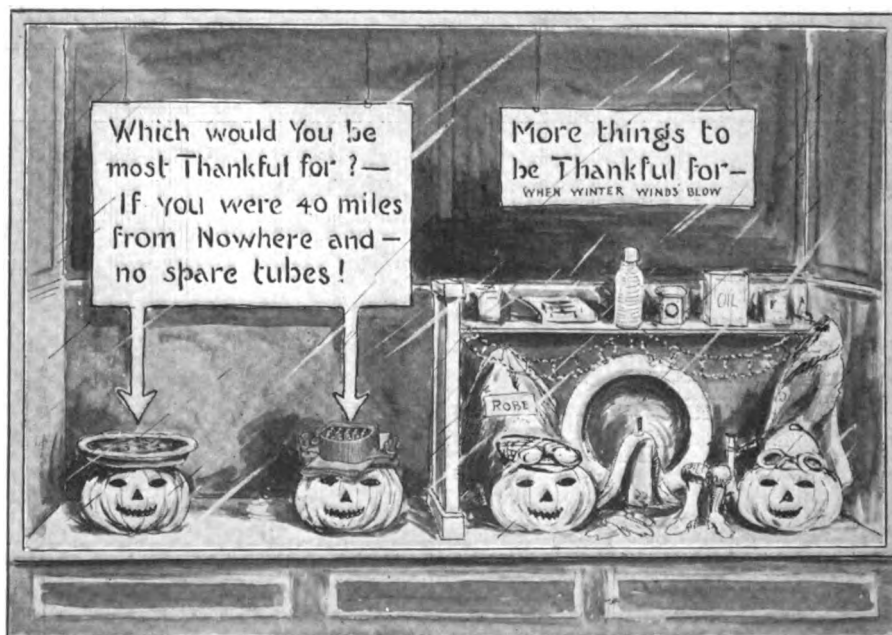
In addition to the capital prize, Anderson gets \$600 for winning with a Bosch magneto, \$100 for rolling on Norma ball bearings, and \$100 for using Vacuum oil; Rooney gets \$400 and O'Donnell \$300 for finishing second and third with Bosch magnetos. Mulford gets \$75 from the Vacuum Oil Co. for his fast elimination trial lap; Resta gets \$50 for his fastest

lap during the race, given by the Norma company, and Aitken gets a silver trophy and \$100 from the Motor-Vim Sales Corp. for leading at 200 miles.

PUBLICITY BY DEALER LECTURING

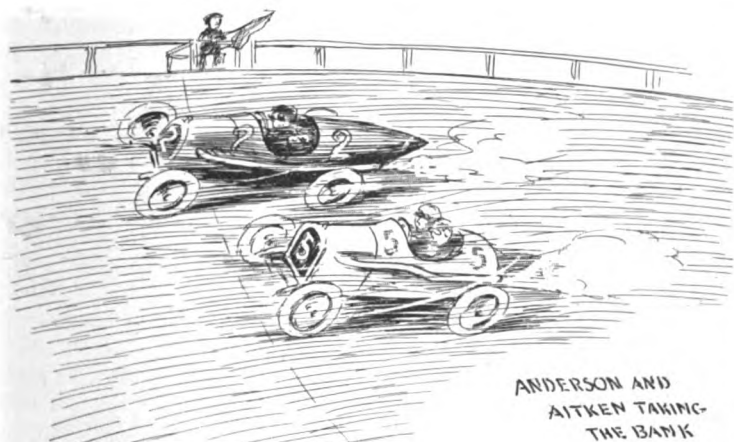
To take advantage of every opportunity to bring before the public the car which he represents should be the aim of every wideawake dealer, and there are many ways in which this can be done. As an example in point, a recent experience of A. G. Perretz, sales manager of the Franklin company in Brooklyn, N. Y., is interesting. Perretz has blossomed out into a full-fledged lecturer. At a recent session of a school for the education of motorists, Perretz was asked to expound the merits of the Franklin air-cooled car, to tell of its advantages and the whys and wherefores of its construction. Some dealers might balk at such an assignment, but Perretz immediately saw the possibilities of acquainting a large class of prospective owners with Franklin principles. So he appeared before the school as a lecturer and gave a straight from the shoulder sales talk. This was no factory lecture. It was simply a sales talk such as ordinarily would be used to prospects. And it made a big hit. But best of all, already it is beginning to bear fruit. It has educated 75 or 80 people, who had never before heard the advantages of the air-cooled motors and other Franklin features, up to their desirability. They are carrying these facts around in their heads.

REPRODUCE THIS WINDOW FOR THANKSGIVING DAY



On the pumpkin at the left there is a pie—it is the most appetizing pie that can be obtained; it is something to be thankful for. On the pumpkin at the right there is a gasoline vulcanizer—this, too, is something to be thankful for. In the right compartment there are a number of articles for which the motorist will be thankful when winter winds do blow. Reproduce this window. Have it photographed. Send the photograph to Motor World. Motor World will pay \$2 for sharp, clear photographs showing reproductions of this idea

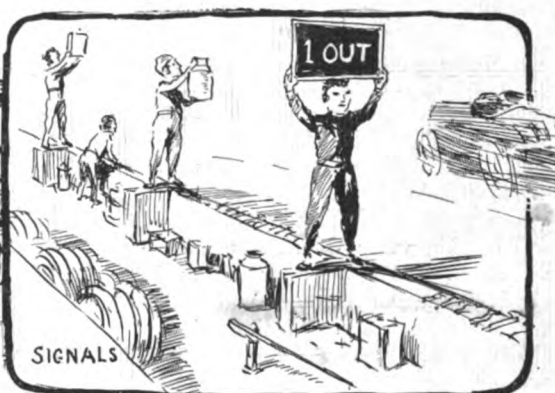
Scenes and Incidents on Sheephead Oval



ANDERSON AND
AITKEN TAKING
THE BANK



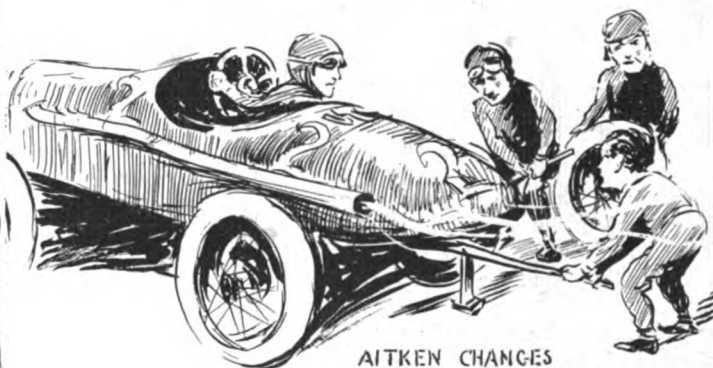
ANDERSON TANKS
UP IN 30 SECONDS



SIGNALS



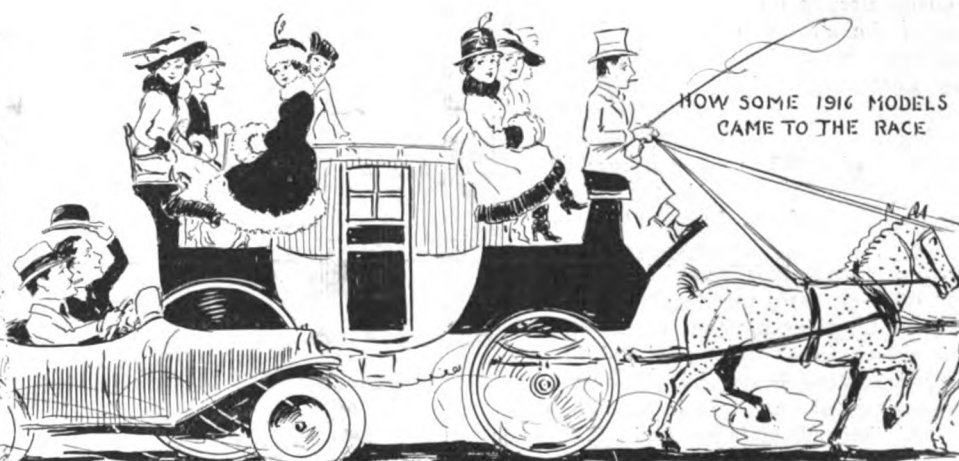
ORDER IN
THE PITS



AITKEN CHANGES
TIRES IN 11 SECONDS



FARWELL
Sheephead Bay



HOW SOME 1916 MODELS
CAME TO THE RACE

Stewart Air Starter for Fords—\$40

**Quickly Attached—Air Pump Separate
Unit—Operation Entirely Automatic**

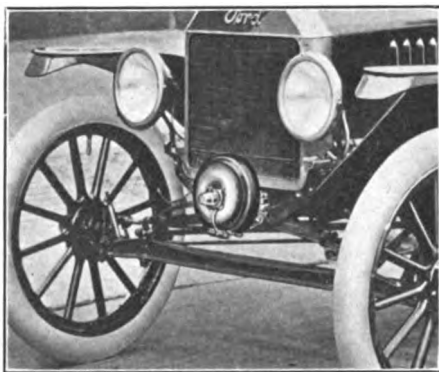
CHICAGO, October 11—The Stewart-Warner Speedometer Corp. has added a pneumatic starter, designed specially for quick installation on the Ford car, at \$40. The outfit consists of an air compressor, similar in design to the Stewart tire pumps, an air motor having a rotating piston, a tank for the storage of the air under pressure, and an automatic distributing or regulating valve and an automatic starting clutch. In addition to this the only two parts are the pedal push button with its linkages to the regulating valve and the sliding clutch, and a pressure gauge on the dash, and the hose and pipe connection for the transfer of the air.

The starting motor is an air-tight cylinder, circular in form, and replacing the crank handle. Passing through this cylinder is a shaft which engages the motor shaft. Within the cylinder is a stationary head or vane V, also a piston P, or bat-wing valve which is attached to the shaft. This valve or piston is attached to a collar through which the starter shaft passes, and inside of the collar is a pawl which engages the groove or teeth in the starter shaft. A driving clutch C is attached to the end of the starting shaft, the driven member being installed on the end of the motor shaft.

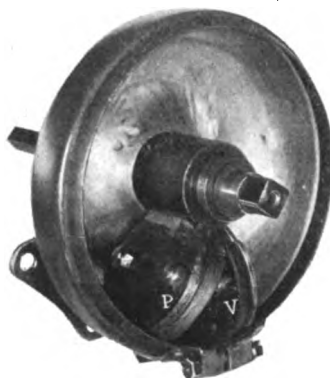
In operation the driving clutch engages with the driven clutch at the same instant that a charge of air enters the starter cylinder. This air pressure causes the piston and shaft to make one complete revolution, but it spins the motor shaft up to as many as 8 or 10 revolutions, depending upon the pressure in the tank.

In order to make a steady yet easy installation of the air pump, or compressor, it is an integral part of a timing gearcase cover which is substituted for the cover already on the motor. The piston of the air pump is driven from an eccentric installed on the end of the timing gear shaft, and runs at half engine speed. The air pump is designed to maintain a pressure of 200 pounds in the reservoir. When this pressure is reached a diaphragm valve in the pump closes the air intake and prevents further rise.

When compressed air is used for starting or inflating tires, thus reducing the pressure in the reservoir, the pressure on the cut-out diaphragm is relieved and the intake valve opens, permitting the pump to force air into the reservoir until the 200-pound limit again is reached. The air reservoir is suspended underneath



Stewart starter installed on Ford



Interior of the cranking motor, showing stationary vane of cylinder head V, and movable vane or piston P. The air pressure is applied between these two members and thus the piston is forced around, making almost a complete revolution

the body in brackets attached to the frame.

One of the features of this system is the air-controlled valve, caring for the compressed air in the reservoir as well as the charge of air to the motor. The air under pressure from the pump passes

through the control valve on its way to the air reservoir, being prevented from returning to the pump by a double check valve.

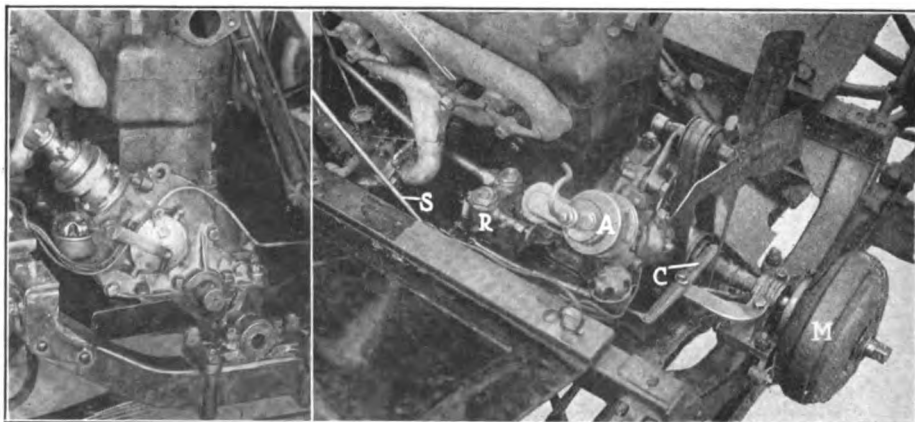
The passage of air from the reservoir to the starter motor is controlled by pedal through an outlet valve which is an important part of the air control system.

The outlet valve, which is operated by pedal, also is connected with a lever which engages the driving clutch with the driven member, thus connecting the starter motor with the crankshaft of the car. There are two stages in the operation resulting from a pressure on the pedal. During the early part of the movement of the pedal the clutch is engaged in just the same way that the hand crank is engaged with the shaft before the actual cranking is started. When the clutch is engaged further movement of the pedal opens the outlet valve, admitting compressed air from the tank to the starter motor.

For winter starting the choker wire, normally connected with the carburetor and passing through the radiator, is replaced with a choker lever installed on the dash. Tire inflation is provided for by a valve and nipple on the air-controlled valve and hose connection with tire pressure gauge. The starter complete, with pump, tank and motor and connections, adds 42 pounds to the weight of the car, which is by no means serious.

Milwaukee Advances Gas 1 Cent

MILWAUKEE, October 11—In common with other markets, gasoline prices in Milwaukee have been raised 1 cent. Both Standard and independents have announced the advance, attributing it to an increase of 1 cent in the price of crude. The advance is due largely to the falling off in the supply in the Cushing fields in Oklahoma. So-called low test gasoline is selling for 11½ cents at filling stations; 65 degree at 15 cents, and other grades correspondingly higher. Prices, however, are lower than a year ago.



Left—Air pump which is mounted on a special timing gearcase supplied with the unit. Right—Complete view of system, showing motor M, starting clutch C, pump A, pressure regulator R, and starting rod S

Takes Advantage of Strategic Location

Mills Lets No Grass Grow on His Pavement



JOHN A. MILLS

Mills does not operate a garage; yet the sign over his door is GARAGE, because the man who wants supplies always looks for the sign GARAGE

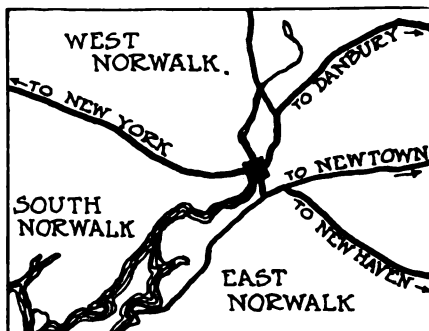
JOHN A. MILLS, proprietor of the Norwalk Supply Shop, Inc., Norwalk, Conn., has located his store in a position of great strategy, and he is taking every advantage of the opportunity the position presents. In three years the business has been built up to the point where this store gets the cream of the city and transient trade.

The store is neat and clean and attractive. It is located in what is virtually the small end of a funnel through which all the traffic through Norwalk must pass. Every tourist must pass Mills's door. And Mills has adopted a number of ways of making the tourist stop.

One of his most original schemes for taking advantage of his strategic location—and one which shows how few possibilities are permitted to go undeveloped—is to deliver circulars into automobiles that are temporarily held up outside his door by the activities of the traffic cop. Periodically a stream of tourists going in one direction is held up by the arm of the law to permit a stream going in another direction to pass.

But before either stream passes Mills has had a circular put in the hands of at least one occupant of every car. The circular is illustrated herewith. Now, as to the psychology of these cards: Because they give the distances from Norwalk to places near-by and some that are not so near-by, they are of interest to the tourist, who likely will keep the circular for future reference. The card gives the correct distances between successive towns in three directions. Mills has made certain of having something on the card of interest to everyone who gets it, no matter in which direction he may be headed. The rest of the card tells its own story.

Mills will get out of bed in the middle of the night to carry gasoline or anything else to a motorist stranded on the road. This service is free and it makes



Mills has located his store virtually in the small end of a funnel through which all transients must travel

a big impression. In addition he has a curb connection to an air compressor and anyone is welcome to drive up, snap on the current and help himself to air.

In one particular respect has Mills exhibited his knowledge of human nature and read aright the working of the average mind. Incidentally this example of his forethought serves but to emphasize Motor World's Campaign for Greater Profits by pointing out that the garage is the logical place for the motorist to purchase supplies.

Mills does not operate a garage. Yet despite this fact he has a large electric sign on the front of his store which flashes forth the single word GARAGE. Beneath it there is a much smaller sign which makes known that supplies are handled.

DISTANCES FROM NORWALK

Darien	6 Miles	Westport	3 Miles	Wilton	3 Miles
Stamford	9 Miles	Southport	8 Miles	Georgetown	9 Miles
Greenwich	16 Miles	Fairfield	12 Miles	Branchville	12 Miles
Porchester	22 Miles	Bridgeport	15 Miles	Ridgefield	15 Miles
New Rochelle	33 Miles	New Haven	35 Miles	Danbury	22 Miles
New York	45 Miles	Hartford	78 Miles	Waterbury	46 Miles
Poughkeepsie	85 Miles	Springfield	100 Miles	Pittsfield	130 Miles
Albany	160 Miles	Boston	200 Miles		

MOTORISTS

When in trouble call up our FREE SERVICE CAR, which is at your disposal DAY OR NIGHT.—TELEPHONE 1585

AUTOMOBILE SUPPLIES

Motor Boat Supplies
Motorcycle Supplies
Bicycle Supplies

Base Ball Goods
Sporting Goods
Fishing Tackle

Electrical Goods
Gasoline
Oil

AGENTS FOR SIMPLEX ELECTRIC VACUUM CLEANER. FREE DEMONSTRATION.

PLEASE CONSULT US ABOUT YOUR NEEDS FOR THE AUTOMOBILE

Our Service and Advice is Free to all. Our policy is One Price to Tourist, Transient, or Local Motorist. We have built our business by honest dealing. Kindly give us a trial

NORWALK SUPPLY SHOP, INC.

29 WALL STREET :: :: :: :: :: :: :: :: :: :: NORWALK, CONN.

This is the card that Mills has delivered into every car that is stopped in front of his store by the traffic cop. The motorist saves it because it contains real information. It also carries an advertisement for Mills

WIDE-AWAKE MERCHANDISING

USED CARS TAXED TIME AND MATERIAL

Murphy Company Knows How Much It Makes or Loses

When a used car is taken in trade by the Frederick E. Murphy Automobile Co., Minneapolis, Paige and Mitchell dealer, it is recorded in a used car book. The first entry on the left side of the page is the trade-in price of the car, which is assumed to be its inventory value.

If any labor or material is used on the car, the invoice number of the item is entered under the trade-in price and the total shows what should be secured. An effort is made to secure this price.

Should it be found, however, that the car is listed too high, the price is written off about \$50 a month until the car is sold, and if a loss is sustained that fact and the amount are written on the right-hand side of the page in red ink. Few red entries appear, however.

If the car should be traded in at a figure lower than that for which it is believed the car can be sold, the trade-in price is noted at the top of the left-

hand column and the supposedly true value is set down as the inventory value. If a loss is sustained it is charged to used car expense. If a profit is made it is added to the profit on the new car on which the trade was made. In the final accounting, the used car expense is deducted before the new car profits are determined. The page looks thus:

BUICK No. 41,117			
7/11/15	John Smith	\$470	
7/21/15	Inv. 2178.....	12.45	
8/9/15	Inv. 2891.....	3.55	
			\$486
8/11/15	Sold to John Jones.....	\$480	
	(Loss \$6)		

THINK!

Every man should work and feel that he is part of the firm and not merely a hired man. He should look after the business as though he owned it and believe that if in any way he neglected his work the business would suffer. On the other hand, employers should do everything in their power to inspire this sort of interest, and where it is lacking the cause should immediately be determined. A disinterested employe is a liability because he drives business away. Sometimes the lack of enthusiasm is due to low salaries, sometimes to a poor executive, or it may lie in the man himself.

BRILLIANT LIGHTS BRING NIGHT TRADE

This and Display Boost Sales to Farmers and Mill Hands

"Half of my accessories are sold at night," remarked a successful garageman in a country town when talking to the Motor World Road Man recently. "The farmers and the mill hands do practically all their purchasing after working hours. They drive in for a spark plug or a wrench or some other necessity; they have the fun of the ride and at the same time obtain some things they need.

"This means that I must not only keep my store open at night, but it must be well-lighted and there must be an attractive display in the window. The big electric sign also helps."

Here is a hint for most garagemen, for this man does 90 per cent of the business in his town.

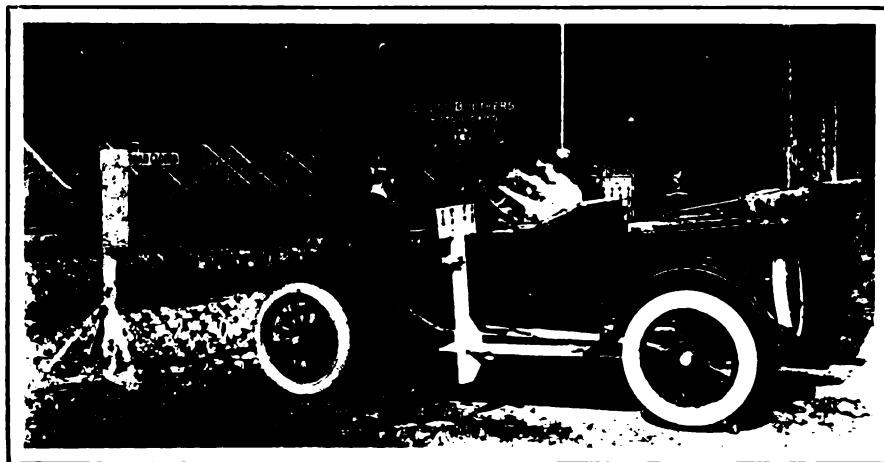
CARS CAN BE SOLD ON GOOD- WILL ALONE

There is a certain dealer that makes a point of knowing all his customers intimately, and so well-founded is his reputation for fair dealing and so sure are purchasers of cars that they will be given the best service possible that many cars are sold every year, not on their merits, but because they feel that with this man's service these cars will give satisfaction. And what is more remarkable, there are about a half a dozen new cars of odd makes sold each season by this dealer because these owners insist on buying their cars through him although he is not the regular agent for them—they know that if he sells them that they will get satisfactory service. Truly a reputation for good service pays.

KWITCHERKICKEN

It looks like German, and because William Schwender, one of the proprietors, is German, the Teutonic aspect is increased. It is a sign that hangs on a beam in Schwender Bros.' garage in Mankato, Minn. It is easily translatable.

These Beginners Learn to Drive Without Moving Car



Bishop, McCormack & Bishop, Dodge dealer in Brooklyn, N. Y., has this novel method of teaching timid owners to drive. All four wheels are jacked up and the pupil is instructed in starting and stopping. A semaphore in front of the car and having arms reading "Road Closed," "Steep Hill," "Bad Curve," etc., is operated by a lever. The pupil is taught to do the proper thing when the various arms are moved in front of him

Taking Advantage of Everyday Incidents to Build Trade



A garage across the street from Meiklejohn & Waford, Waupun, Wis., was nearly destroyed by fire. The next day the Meiklejohn window looked like this

BUXTON PAYS THE FREIGHT; IT PAYS

A Discount for Cash to Offset Other Evils

"Buxton Pays the Freight" is the selling slogan that has recently been adopted by Lynn C. Buxton, Moon and Lexington dealer in Los Angeles, and he states that the innovation has been far more successful than he expected at first. In paying the freight, Buxton is careful to point out that he is not in any way cutting prices; he is merely offering a discount for cash, and here are his own reasons for adopting this rather unusual business policy as given in a letter to Motor World:

"First—The used car problem was rapidly becoming a serious one out here. The dealers did not get together on any sensible basis, and the result was that owners would turn in their used cars to the highest bidder, who would rather give far more for the used car than it was worth than to lose the business. Most of the dealers became so anxious for this business that they would allow several hundred dollars in excess of the market value of cars they were taking in trade. And, believe me, some of these owners were *real* salesmen when it came to unloading their old cars.

"Second—The time payment item. No dealer without a bank behind him could accept the time payments offered. A great many purchasers who were able to

pay cash would buy cars on time, the dealer making the same price whether the deal was a cash or time-payment one. In every other line of business a discount is always offered for cash.

"Taking up the used car question again, I was receiving so many used cars that, continuing the way they were coming, it would have necessitated a separate building for a used car department. The overhead of this department would have been as much if not more than that of the new car department inasmuch as the used cars generally required considerable overhauling and repainting. Then, too, prices changed so rapidly and such large reductions were so frequently announced in new cars that the market fluctuated a great deal on used cars, and it was impossible to determine what a car taken in at a certain price would bring in a month or six weeks from the time.

"Therefore, in lieu of all this, the only logical conclusion to which I could come was that laid forth in my slogan, 'Buxton Pays the Freight.' All cars sold by me are at factory price. Where an owner has a used car, we will dispose of it for him, he paying any expense to which we are put when repairs are necessary, in addition to which he is to pay us a commission of 5 per cent for selling his old car. Where time payments are accepted, the notes or deferred payments carry the usual rate of interest with an additional 5 per cent on same for handling the paper.

"One large manufacturer, namely the Case company, has for some time past made a cash discount of, I believe, 5

per cent for cash. This has always been customary in every other line of business; why not apply it to the automobile business?

"This policy I have adopted, 'Buxton Pays the Freight,' is in no way a cut in price, as neither of the lines I represent requires a discount to be sold, but to bring about better business conditions I am following it and actually absorbing the freight on all cars sold.

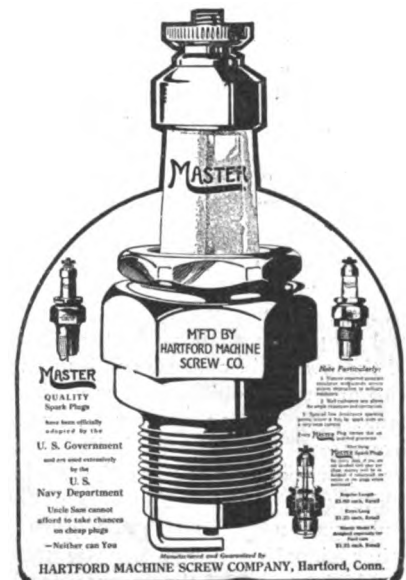
"So far, the adoption of this new method has greatly exceeded my expectations, and I am confident the buying public will rapidly appreciate its significance."

PROVIDES ITS EMPLOYEES WITH CLEAN OVERALLS

To eliminate trouble due to workmen in greasy overalls getting upholstery dirty, workmen of the Pence Automobile Co., Minneapolis, pay 25 cents a week for two clean pairs a week. The wash is collected Wednesday and Saturday nights and the company takes care of all laundry arrangements, even to deducting the 25 cents from salaries. Workmen are also instructed to use paper to sit on.

DISPLAY HELPS FOR THE DEALER

There are many devices which are supplied by accessory manufacturers to their dealers for the better display of merchandise. One is illustrated herewith. Manufacturers who supply these devices are urged to forward photographs or sketches of them.



The Hartford Machine Screw Co., Hartford, Conn., is offering dealers an attractive display stand. Particularly noticeable is the mammoth plug which can be seen for a long distance. The stand is 20 in. high, in three colors with a brilliant red background and the plugs in silver and blue. The stand is so arranged that it can be set on a counter, can be hung up or used in connection with a window display. It calls attention to the fact that Master plugs have been adopted by the United States Government and are used extensively in the United States Navy Department.

Dealer's Legal Status

Has a Repairman Any Right to Test a Customer's Car Without His Permission?—Persons Using Car Must Use Ordinary Care

By George F. Kaiser

Editor Motor World:

Has the decision ever been rendered deciding whether a garageman has the right to take the car owner's automobile out for testing purposes, when left with the garage owner to have such kind of work done? The case in point, or, rather, which we have in mind, is one in which the car owner left the car with the garageman in order to have a carbureter adjusted and overhauled and repaired. The garage proprietor maintained that it was necessary to take the car out and run it to see whether the proper repairs and adjustment had been made to the carbureter.

The situation which confronts you at the present time, while a peculiar one, is one that is likely to happen at almost any time. I know of no decision rendered in any of the courts which deals with the point involved in your letter.

It is only reasonable, however, to expect a garageman to take a car owner's automobile out for testing purposes when it is left with him to have carbureter adjustments or other adjustments made.

The Minnesota Motor Vehicle Law, Section 241, entitled "Tampering with or Damaging Vehicles," etc., provides:

"No person shall tamper with or drive or operate or use a motor vehicle without the permission of the owner, and no person shall, without authority of the owner in charge, climb upon or into any automobile whether while the same is in motion or at rest, or hurl stones or any other missile at the same or occupants thereof, or shall, while such motor vehicle is at rest and unattended, sound the horn or other signaling device or attempt to manipulate any of the levers, starting cranks, brakes or machinery thereof, or set such vehicle in motion or otherwise damage or interfere with the same; nor shall any person place upon any of the streets, avenues or highways of this state any glass, tacks, nails or other articles tending to injure automobile tires."

You will notice that this section makes no distinction between the express and

During the course of the test the car was injured, namely, the cylinder head cracked. The garage proprietor maintained that no responsibility rests upon his shoulders, inasmuch as the cylinders were undoubtedly weak and the car was subjected to no abnormal undue strain. The customer, however, maintains that the garageman had no authority to operate the car without the owner's express permission.

If there has ever been a decision on a point similar to this we would be very glad indeed to have you give us the information bearing on the matter.

implied permission of the owner. Although, of course, you could hardly contend that you had express permission to operate the car, according to your letter I am convinced that you can successfully contend that you had implied permission. The important point brought out in your letter is: Was the person who was testing your car using ordinary care while so testing it? If ordinary care was used, that is, the care a man would use while driving his own car, I do not think you would be responsible for these damages. If there was negligence on the part of your tester, however, you may be responsible. If suit is brought on a claim of this kind by a car owner, the chief question would be a question of fact for the jury to decide.

CHattel Mortgage Claim Is Ahead of Repair Bill

Editor Motor World:

I have a car here that has remained on storage for the past five months. I have an old repair bill against this car and a small repair bill since the car was received here. The above-named car has also a mortgage on it by another party. I have written the owner three letters but have received no answer to them, and I know he received the letters. This car was left here for the party holding the mortgage to sell and he has done nothing with it. Now is my repair

bill and storage good ahead of the mortgage? Also let me know anything else that would help me out in procuring my repair bill and storage.

G. S. Voorhies.

Royal, Neb., Sept. 16.

Chapter 39 of the Revised Statutes of Nebraska, 1913, paragraph 3841, Section 19, entitled "Artisans' Liens," provides as follows:

"Any person who makes, alters, repairs or in any way enhances the value of any vehicle, automobile, machinery, farm implement or tool, or shoes a horse or horses, or mule or mules, at the request of, or with the consent of the owner or owners thereof, shall have a lien on such vehicle, automobile, machinery, farm implement or tool, or horse or horses, or mule or mules, while in his possession for a reasonable or agreed charge for the work done or material furnished, and shall have the right to retain said property until said charges are paid."

Paragraph 3842, Section 20, further provides that the above-named have a lien where they part with the possession of the property if they file a certificate in the office of the clerk of the county where the work was done, the material was furnished, or the property was kept, together with a verified statement of the items of work and material and a description of the article repaired. These must be filed within 60 days after the last item of labor is performed or material is furnished.

Chattel Mortgage Comes First

Paragraph 3843, Section 21, makes the above-mentioned liens prior to all other liens, except those previously filed in the office of the county clerk, and provides that they shall be treated and foreclosed in the same manner as a chattel mortgage.

There is no doubt, then, that you may have a lien for labor performed and materials furnished to an automobile left with you. It does not seem that you have a lien for the "old repair bill," as you did not retain possession of the car until that bill was paid.

The chattel mortgage on the property, if properly filed, would be valid and would come ahead of the last repair bill. If the car is worth enough to satisfy both the chattel mortgage and your last repair bill, you might go ahead and foreclose, but you must do this within a year from the date of doing the work or furnishing the last material.

I cannot seem to find any Nebraska cases on this point. I think the best thing to do would be to get in touch with the holder of the chattel mortgage and see if you cannot arrange to sell the car. If a sufficient amount is procured on the sale, you can proceed against that amount to recover what is due you.

DEWDROP'S FABLES —

+ THE TALE OF WOOLYGOOS +

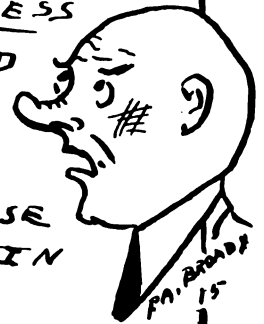
THE WOOLYGOOS WERE AFTER ME HARD.! BULLETS WHISTLED PAST WITH EVER INCREASING FREQUENCY.! FIVE FEET BEHIND ME PANTED THE ENEMY.! MY LUNGS SEEMED BURSTING AND MY BREATH CAME IN GREAT SOBBING GASPS!~*~ I GAVE MYSELF UP FOR LOST FOR I HAD BEEN CAUGHT SPYING IN THE ENEMY'S COUNTRY. DEWDROP'S FABLES WERE A THING OF THE PAST. MY LATEST WIFE WOULD EAT HER HEART OUT WAITING FOR ME, AND I, IN ONE SECOND MORE WOULD DIE THE DEATH OF A SPY, UNLOVED, UNHONORED, A MAN WITHOUT A COUNTRY.

AS I STUMBLED ALONG, HOPING DEATH WOULD COME WITHOUT TOO MUCH PAIN, I CAME TO A FAMILIAR LOOKING RED BRICK BUILDING WITH A SIGN IN FRONT WHICH READ "AVERAGE GARAGE" DARTING THROUGH THE DOORWAY I SOON LOST MYSELF IN THE STOCK ROOM AND, LOOKING BACK, HAD THE SATISFACTION OF SEEING THE WOOLYGOOS TURN AWAY IN DISGUST. THEY KNEW IT WAS USELESS TO TRY TO FIND ME* IN THAT DUSTY, DISHEVELED PLACE.

MORAL— CLEAN UP!
 READ THE MOTOR WORLD— PUT YOUR HOUSE
 IN ORDER OR YOU'LL SOON HAVE TO PUT IT IN
CLEAN UP!

DEWDROP—

*OR ANYTHING ELSE



OLD DEWDROP makes some very pointed remarks in his Tale of the Woolygoos. Some of them almost hurt, they are so blunt and direct. There are many, many garages to which this story does not apply, but—sad, but true—there are many, many others which the coat fits "like the paper on the wall." As a suggestion, just imagine the Woolygoos are after you: run out into your own stock room and see

whether it looks like a good place to hide. If it is anything like the stock room Dewdrop ran into there is urgent need for action. There is no more excuse for dirt and disorder in a stock room, in an accessory display, in a show window or in a garage than there is for the same condition in a home, and a man certainly wouldn't stand for it there. Have respect for your business. Give it a good home.

REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Economy in Charging Current

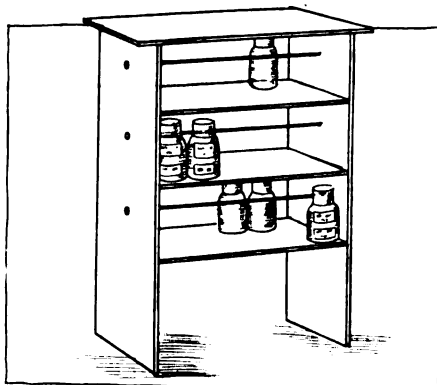
(No. 268)

A current economy in charging storage batteries can be effected by utilizing the current that is ordinarily consumed by the resistance in lighting the garage. Three banks of four 100-watt lamps are used and one, two or three may be brought into circuit as desired. Finer gradations of resistance may be obtained by turning individual lamps on or off. The diagram of connections for operating on a direct current, 220-volt circuit is shown.—M. B. West, De Weese Auto Garage, Lima, O.

Cylinder Lapping Device

(No. 269)

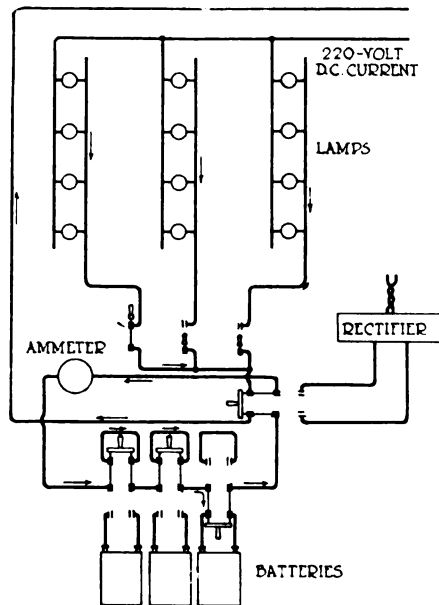
In a big repairshop a piston and cylinder lapping machine, especially where many cars of one make are repaired, will pay well. It is merely a device to re-



(No. 267)

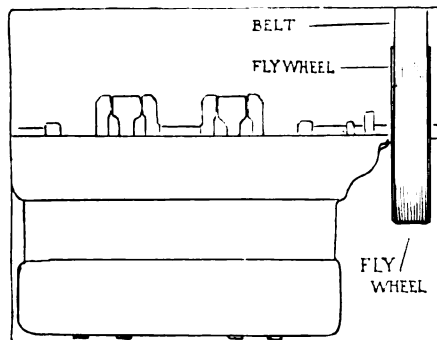
Rack and glass jars for small parts

ciprocate the pistons back and forth in the cylinders while rouge and water are used to do the lapping; four or six cylinders are done at once. An old six-cylinder crankcase and crankshaft of suitable size are turned upside down and bolted solidly to a bench constructed for the purpose. A belt connects the flywheel with the line shafting. The cylinder block to be lapped is slid into place and the connecting rods are attached to the crankshaft, and then the cylinder block is locked in this position. The power is then turned on and the lapping process is started. Another way of doing this would be to build a cradle for holding any shape or size of motor and then place the motor cylinder block, crankcase and crankshaft into it. Then the belt for driving would be attached. The belt should not be run any tighter than is necessary to reciprocate the pistons—which means that it can be quite slack, as not much power is required—and the lapping should be done at a moderate rate of speed.—F. H. Woodhull, service manager, Studebaker Corp., New York branch.



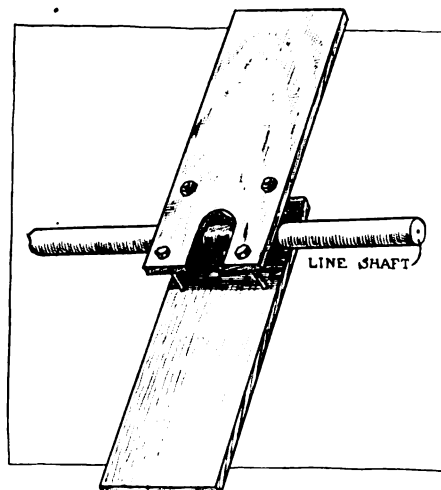
(No. 268)

Wiring diagram for adjustable resistance



(No. 269)

Reversed crankcase for cylinder lapping



(No. 270)

Shop fan of boards bolted to shaft

Rack and Jars for Parts

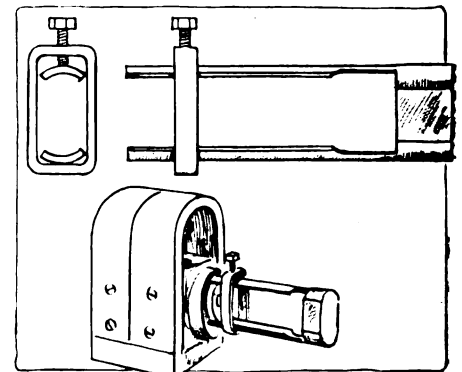
(No. 267)

Small articles in accessory store or stock room are conveniently housed in glass jars arranged on a rack as shown. Each shelf is just wide enough to hold two rows of jars, and the two rows are separated by a rod which also serves to hold the shelving together. Each jar has two tags on it, one giving the name, size and price of the part, and the other telling the position number of the jar and where more stock of the same kind may be located. The former insures that the jar will always be placed in the same position, as there is a number to correspond on the shelf under each jar, and the latter makes it possible to find the stock without any trouble when the jar becomes empty and must be re-filled.—H. Johnson, New York.

Magneto Cam Clamp

(No. 271)

A clamp for removing the cam from the magneto armature shaft is shown herewith. It is made out of a solid bar



(No. 271)

Clamp for removing magneto breaker cams

of steel, cut to the proper shape. A special form of ring clamp is used to compress the ends which grasp the cam.—J. H. Taylor, foreman, Xenia Garage, Xenia, O.

Shop Cooling Fan

(No. 270)

A fan is an excellent device to keep the shop cool and well ventilated, and there is nothing simpler than the shafting fan shown. It consists merely of two boards of length and width as desired, which are clamped to the shafting.—Ford Motor Co., Long Island City.

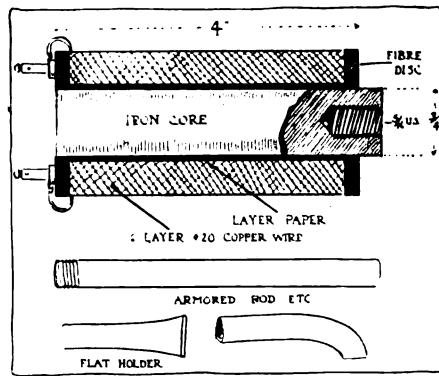
The New Spirit

Page 5

Pick-up Magnet

(No. 273)

A magnet is a very handy thing with which to pick up iron and steel parts, especially an electro-magnet, because of its superior strength. In the magnet illustrated a $\frac{3}{4}$ -inch soft iron core 4 inches long is used and it is wound with six layers of No. 20 cotton-covered wire. The terminals are brought out at one end, and at the other there is a $\frac{5}{16}$ -inch tapped hole for the insertion of various types of rods to aid in reaching out-of-the-way corners. A 6-volt storage battery may be used as a source of current.—M. R. Potter, Wm. Petry, Inc., Hudson, N. Y.



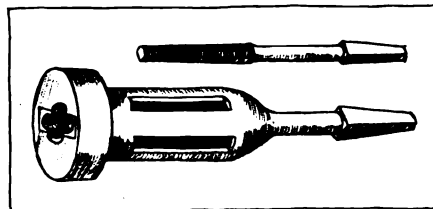
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Details of electro magnet for shop use

Brace Die-holder

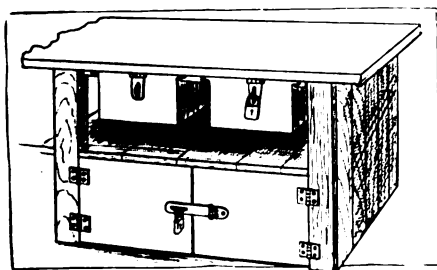
(No. 274)

A die holder for bit brace use comes in handy in rethreading spring clips, and in fact for all rethreading work. This type of die holder is especially adapted for spring clip rethreading because it clears the other leg of the clip—something that the ordinary die holder will not do. The use of this tool in automobile work is comparatively rare and its use suggests that more time could profitably be spent by the repairman in perusing small tool catalogs and selecting tools that were better fitted for his work.—H. Johnson, New York.



(No. 274)

Rethreading die and tap for brace



(No. 272)

Utilizing storage space under work bench

Good Tool Storage

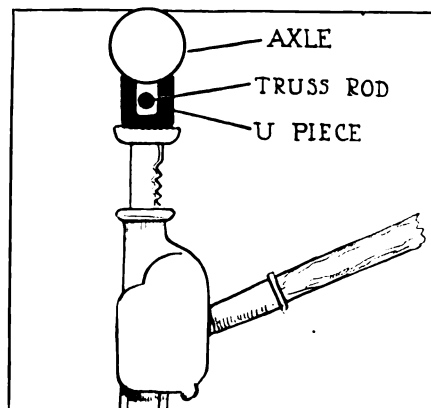
(No. 272)

There is enough space under the work bench to not only house all the tools carried in the shop but also all the parts of cars that are in the process of overhauling. By utilizing this space the floor is kept clear of obstructions and the danger of things becoming lost or broken is minimized. A neat way of housing these parts under the bench is shown herewith. Sheet metal drawers are placed directly under the bench top and below there is a large closet closed by sheet metal doors. The drawers and doors may be padlocked when desired. Divisions may be made to suit the sizes of tools, etc., to be stowed in the cupboard and drawers.—D. & P. Auto Repair Co., New York City.

A Jacking Wrinkle

(No. 276)

When an axle truss rod interferes with the jack the difficulty may be overcome very nicely by using the U-shaped member shown. It consists of a piece of $\frac{5}{8}$ -inch flat stock bent and cut in the manner illustrated and is placed between the head of the jack and the axle.—H. Johnson, New York.



(No. 276)

Jacking axle with interfering truss rod

it further upon the arbor. To reduce the size the sleeve must be moved down to the smaller end of the taper and then compressed. Emery and grease are used as an abrasive, coarse emery for starting and fine for finishing.—D. & P. Auto Repair Co., New York.

Garage Car Stowage

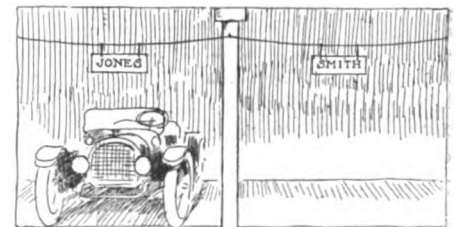
(No. 278)

It is easier to drive into a tight place than to back in, and, conversely, it is just as easy to back out of a tight place as to drive out. Therefore, storing cars in a garage with the fronts to the wall has much to recommend it. The drawing shows how one garage has done this. There is a locker in each car space and this serves roughly to locate the car. In backing the driver has the whole aisle to back into and therefore little difficulty is experienced. The aisle width is 24 feet.—Pence Automobile Co., Minneapolis, Minn.

Light in Bearing Work

(No. 279)

Taking up bearings and similar work can be greatly facilitated by illuminating the under part of the motor by means of a small electric light. A 2-candle-power bulb with an Edison base is ideal for this purpose and current may be derived from four dry cells in series. The small size of the bulb allows it to be placed almost anywhere in the motor and in such close quarters the low candle-power is ample. An added advantage is



(No. 277)

Name labels for car spaces in garage

that the outfit is easily portable.—A. E. Cassel, foreman, Ashtabula Garage, Ashtabula, O.

Marking Car Spaces

(No. 277)

To make sure that each car in the garage is stored in its proper place, it is a good idea to tack cards on the wall with the owners' names on them, the card for each particular owner being right in the center of his space.—Alfred V. Slatter, Rochester, N. Y.

Improving an Old Hammer

(No. 280)

The face of a battered hammer may be greatly improved by the simple process of grinding it to take off the unevenness of the surface. The steel should not be overheated in the grinding.

The New Spirit

Page 5

Facts About Cars

What Actually Happens on Explosion Stroke

Assume that the piston is at upper dead center and that the combustion or explosion has just taken place. The extreme pressure forces the piston out, and as the piston moves, the space that the gases occupy is enlarged and therefore the pressure drops. Theoretically the piston should move out until the pressure has been reduced to atmosphere, but this would require a very large cylinder because, although the pressure drops quickly at first, its rate of decline becomes less until toward the end of the movement it hardly drops at all. The curve of expansion is shown in Fig. 2. The vertical lines represent pressure and the horizontal distance represents piston movement from left to right.

There are, of course, other circumstances that tend to lower the theoretical pressure at any given point. There may be leakage through the valves or past the rings of the piston. And then from the moment that combustion occurs there is a flow of heat to the water-jackets, and this means that at any given piston position the temperature is lower than it would be if there were no heat lost. Reduction of temperature, of course, brings with it a proportional reduction in pressure.

Therefore, to keep the stroke within practical limits the expansion of the gas is not carried below the point A. In a very slow-running motor, such as might be used in stationary engine practice, this point would probably represent simultaneously the opening of the exhaust valve and the lower dead center point of the piston. But on the relatively fast-running motors used in automobile work it is necessary to open the exhaust valve considerably before dead center is reached in order to discharge the gas, and thus lower the pressure to nearly atmosphere before the piston moves an appreciable distance on its exhaust stroke.

CARE OF UPHOLSTERY

Leather, and good artificial leather materials, will naturally stand much abuse without, for a time, showing evidences of brutal treatment. On the other hand, the upholstery and interior furnishings of the car reveal at once the lack of care, or the wrong kind of care, which the garage attendant or the chauffeur may be guilty of. Many of the fine upholstery fabrics in cleaning should be worked over with a brush; never with an ordinary whisk broom.

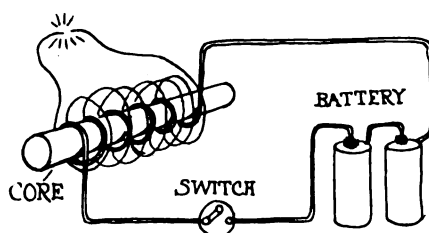


Fig. 1—Diagrams showing simple spark coil and connections

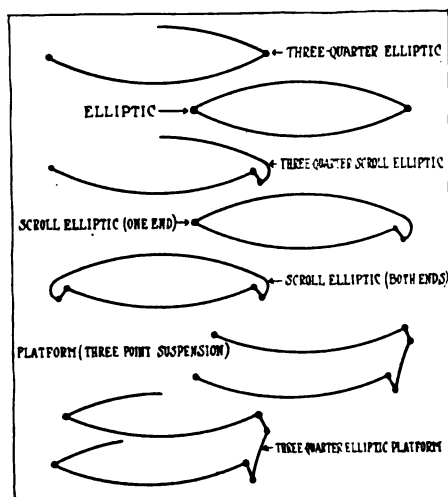


Chart showing S. A. E. nomenclature for various spring types

There are soft point brooms now specially furnished for this work which readily remove light dust without injury to the cloth. The vacuum cleaner properly handled will extract all dry dust and dirt from the upholstery and the car interior. Grease spots, oil smears, and stains of many kinds may be removed from the cloth upholstery by saturating a piece of the same goods as that contained in the upholstery with ether, and rubbing the cloth sharply over the smear or stain. If, for any reason, the strength of the ether needs to be reduced this may be accomplished by mixing it with pure grain alcohol. It should be used with great care, however, being very inflammable and its heavy vapor is a source of much danger from fire.

Pressure Rise Due to Explosion Heat

The direct result of combustion is for a rise in pressure to take place, the maximum pressure with throttle open being approximately 300 pounds in the average motor. This rise is due primarily to the high temperature, from 2,500 to 3,000 degrees Fahr., but also to the fact that the products of combustion

naturally tend to occupy more space than does the unburned charge. Whenever a gas is heated, all the other conditions remaining the same, the pressure rises—this is a physical fact. Thus the heat of combustion increases pressure.

Explanation of Spark Coil Operation

Suppose the core of soft iron, Fig. 1, to be wrapped with a few turns of insulated wire connected to a battery with a switch interposed, and on top of this another winding, consisting of a very large number of turns of fine wire. If the switch were closed, allowing the current to pass through the heavy coil, the core would at once become strongly magnetized. And if the switch were then suddenly opened the rapid change of the core from a magnetized state to that of an unmagnetized piece of iron would cause a high-voltage current to be induced momentarily in the outer winding sufficient to make a spark at any small gap in the circuit.

This dying down of the magnetism would also cause an induced current in the primary or heavy wire coil, but as the intensity of induced currents depends on the number of turns composing the coil, the voltage so produced would only be a fraction of that produced in the many turns of the secondary winding and can be considered negligible.

In the modern high-tension magneto, the iron armature takes the place of the core, and instead of the battery furnishing the low-tension current for the primary coil the current is induced by the fluctuating magnetism of the armature itself. The current which causes the spark at the plug can be termed a secondary induced current, the primary induced current being that caused by the magnetism of the main field magnet.

Rule For Tire Inflation

An easy rule to follow in tire inflation is that the pressure should be 20 times the section of the tire; a 4-inch tire should be pumped to 80 pounds and a 4½-inch tire to 90.

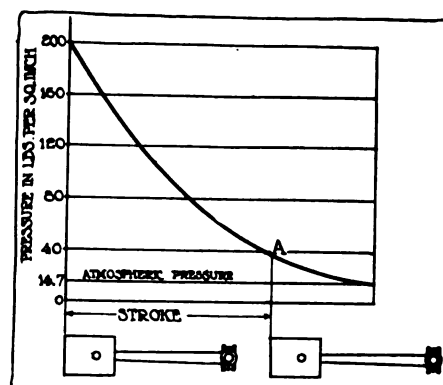


Fig. 2—How pressure drops as expansion proceeds. Ordinarily the exhaust valve opens at A

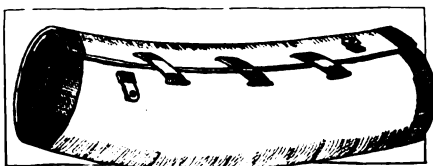


ACCESSORIES & SUPPLIES :

WEAVER BUCKET PUMP

Weaver Mfg. Co., Springfield, Ill.
PRICE, \$12.

A heavy valveless grease pump is detachably mounted in a large bucket so that it can be used in three ways; grease can be pumped from the bucket into a gearbox or rear axle housing; it can be pumped from a case or housing into the bucket; and it can be pumped from its original can or barrel into the housing without using the bucket. Valves are eliminated by using ports which are covered and uncovered by a slight turn of the pump barrel. The barrel holds exactly 1 pound of grease or heavy oil and is 2 inches in diameter, made of heavy brass tubing. The bucket, of sheet steel, has a two-part cover, one section sliding



Polson's rubber-ended blow-out patch

within the other, and holds 25 pounds of grease. The hose used is of flexible steel and is $\frac{5}{8}$ inch in diameter.

POLSON'S BLOW-OUT PATCH

Polson Rubber Co., Kansas City, Mo.
PRICES, 3-inch, 80 cents; $3\frac{1}{2}$, 90; 4, \$1; $4\frac{1}{2}$, \$1.20; 5, \$1.40. All 10 inches long.

A patch especially adapted for use under bulged or weak places in the casing. Made of heavy white frictioned fabric with red rubber ends, the whole being vulcanized over a mould. An inside extension forms a pinch-preventing flap; the fastening is a self-adjusting strap. When air pressure is applied the patch expands at the ends and tightens in the middle, preventing pouching at the weak place.

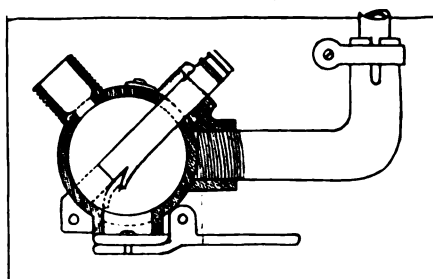
EXCELITE SWIVEL LAMP

J. H. Faw, Inc., 41 Warren street, New York. PRICE, plain type, \$6 each; De Luxe type, nitrogen bulb and armored cable, \$7. Truck type, 7-inch, \$6; 9-inch, \$7.50.

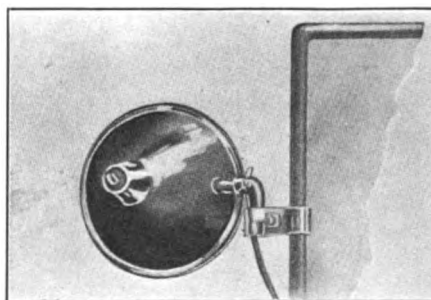
A convenient form of universally jointed spot-light for mounting on the windshield or dashboard. At the back of the lamp is a switch and a focusing adjust-



Weaver bucket grease pump, showing two methods of using



Dietz carbon-eater separating valve



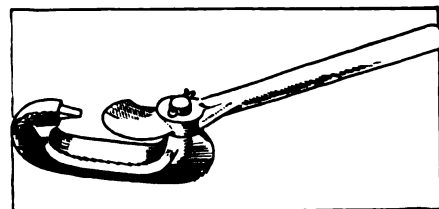
Excelite swivel lamp on windshield

ment which is operated from the outside. The front diameter of the reflector is 7 inches. A special type is made for operating on Ford magneto current and two sizes for truck service, being designed for clamping to the top of the dashboard.

NORTON'S SPRING SPREADER

I. S. Spencer's Sons, Guilford, Conn.
PRICE, \$2.

This tool has a C-shaped body with one entering edge stationary and the other, which is cam-shaped, on the end of a movable lever; when the lever is swung over the two edges are forced between the spring leaves. The stationary edge is of chrome nickel steel and the lever of cast steel.



Horton's spring-leaf spreader

DIETZ CARBON EATER

Dietz Carbon-Eater Co., Gray & Thomas, agents, 1620 Broadway, Denver, Colo. PRICE, installed, \$5. DEALERS, dozen lots, \$30; less than dozen lots, \$36.

A system for taking water vapor or steam leaving the radiator through the overflow pipe and piping it to the carbureter, where it mixes with the gasoline and air and is carried into the cylinders. The makers state that it is a preventive of carbon, a softener of old carbon and that it makes the motor run more smoothly and with less fuel. The principal feature of the outfit is a valve which is introduced in the pipe line between the overflow pipe and the carbureter. An automatic gate prevents the passage of liquid water beyond the valve, and a balanced trap at the bottom opens and drains the water off. Once installed and the carbureter readjusted, the device is said to require no attention.

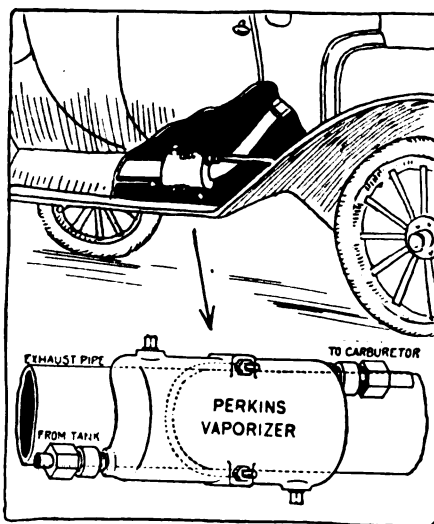
The New Spirit

Page 5

PERKINS FUEL VAPORIZER

The United States Agency, Inc., 98 Massachusetts avenue, Boston. PRICE, \$3.

A small casting containing a chamber through which the gasoline passes on its way to the carburetor is clamped to the exhaust pipe and the fuel line is cut and the cut ends connected, one to the intake and the other to the outlet of the chamber. The gasoline reaches the carburetor at a high temperature and is easily vaporized without the use of hot air. The fuel is also filtered in passing through. Solderless connections are used and the makers state that the device can be installed in half an hour.

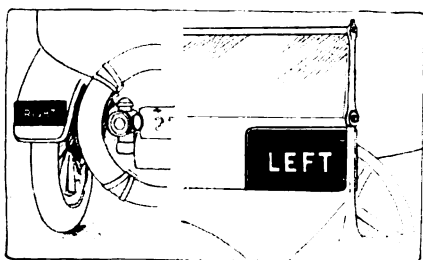


Perkins vaporizer on exhaust pipe

NEW WOODWORTH TIRE

Leather Tire Goods Co., Niagara Falls, N. Y.

A strip of chrome leather is built into the structure of the tire, on the inside, so that it comes between the tube and the shoe and protects the tube from puncturing objects. The leather is so light that the weight of the tire is not materially affected, and it is flexible, so that it adds no perceptible stiffness. The makers state that the leather will not cause overheating and they guarantee the tires against puncture for 5,000 miles, agreeing to pay the cost of repairing punctures suffered within the term of the guarantee.



Singer signal system, front and rear

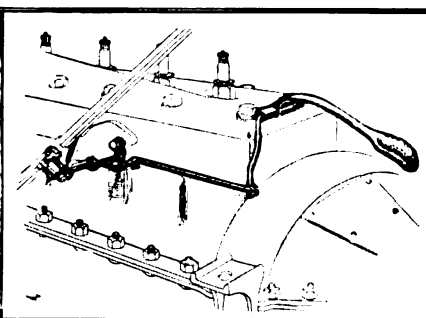
SINGER SIGNAL SYSTEM

C. A. Singer, 1627-31 Washington avenue St. Louis.

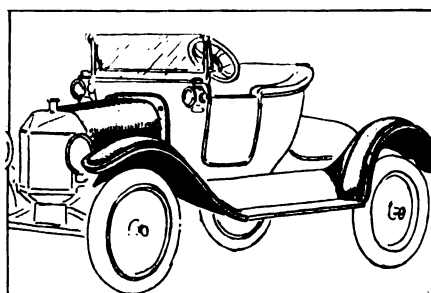
A signal box is carried at the rear of the car and another at the front, and these show, in white letters on a black ground, the words Right, Left, Circle, Stop, Slow. The device is electrically operated by a single button mounted on the steering wheel. At night it is illuminated. The box is 6 x 8 inches and is finished in black enamel; the letters are 1 3/4 inches high. The makers state that the system can be installed in any car in 15 minutes and that the current used is so small as to barely move the ammeter needle.

TRESCOT POCKET METERS

Sterling Mfg. Co., 321 Frankfort avenue, Cleveland, O. PRICE, ammeter, \$1; voltmeter, \$1.10; voltammeter, \$1.35.



Humboldt accelerator for Fords



Lawco hood and fenders for Fords

DEALERS, ammeter, 55 cents; voltmeter, 60 cents; voltammeter, 75 cents.

A line of meters somewhat smaller than the standard Sterling pocket meters has been marketed. They have the same constructional features as the larger instruments, and possess the advantage of being thin and light. The thickness is a little more than half an inch and the diameter 1 3/4 inches. The instruments are designed for battery testing and are of the following capacities: Ammeter, 40 amperes in 5-ampere divisions; voltmeter, 10 volts in 1/2-volt divisions; voltammeter, 40 amperes in 5-ampere divisions and 10 volts in 1/2-volt divisions. One terminal is a tipped cable and the other a stationary button.

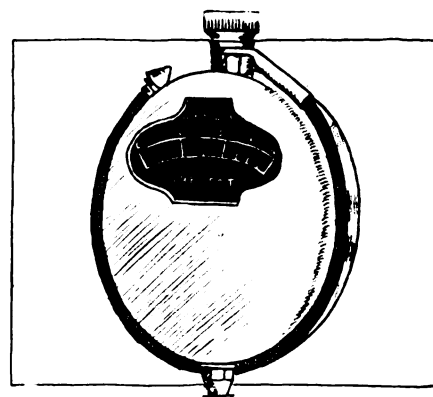
ACCELERATOR FOR FORDS

Humboldt Machine & Stamping Co., Long Island City, N. Y. PRICE, \$1.

A pedal pivoted on the rear end of the engine actuates the throttle through an arm and connecting rod and permits foot control of speed independent of the lever on the steering wheel. Footboards can be removed and replaced without interference from the pedal. The finish is hard rubber baked enamel.

LAWCO HOOD AND FENDERS

The F. H. Lawson Co., Cincinnati. PRICE, fenders, per set, \$14; dealers, 100 sets, 30 and 5 per cent; 50 sets, 30



Trescot thin model pocket meter

per cent; 25 sets, 25 and 5 per cent; 10 sets, 25 per cent; single sets, 20 per cent. Hoods, \$8; dealers, 100, 40 and 10 per cent; 50, 33 1/3 and 5 per cent; 25, 30 per cent; 10, 20 and 5 per cent; single orders, 10 and 5 per cent.

Lawco fenders are crowned and of attractive design and are made of 20-gauge steel and finished with hard baked enamel. They are interchangeable with the regulation fenders on model T roadsters and touring cars, but are not adaptable to the 1915 Ford sedan. The hood is of the same quality of material and is finished in the same way; it tapers back to the dash, where it is attached by means of an easily attached special head ledge.

Repairing and Adjusting

TO FIND INCHES ON FLY-WHEEL FROM DEGREES

A quick method for finding inches on the flywheel circumference when degrees are given is afforded by the curves, Fig. 2. For example, to find the number of inches on a 16-inch flywheel, corresponding to 130 degrees, it is merely necessary to refer to the curves, as indicated. In this manner valve timing in degrees may quickly be converted to inches on the flywheel.

In case a more accurate result is desired the following table may be used, which gives the flywheel circumference represented by 1 degree, for flywheels varying from 12 to 24 inches, by half inches. Thus, to find the distance on the flywheel circumference corresponding to 33 degrees on an 18-inch flywheel, multiply 33 by .157, which would give 5.18 inches.

Diameter in Inches	Inches per Degree on Circumference	Diameter in Inches	Inches per Degree on Circumference	Diameter in Inches	Inches per Degree on Circumference
12	.105	16.5	.144	21	.183
12.5	.109	17	.148	21.5	.187
13	.114	17.5	.153	22	.192
13.5	.117	18	.157	22.5	.196
14	.122	18.5	.163	23	.201
14.5	.127	19	.166	23.5	.205
15	.131	19.5	.170	24	.209
15.5	.135	20	.174		
16	.140	20.5	.179		

Lye Is Radiator Cleaner

For cleaning the radiator a good solution to use is $\frac{1}{2}$ lb. of lye in 5 gallons of water. Strain through a cloth before using. Run the motor for 5 minutes, then draw off cleaning mixture. Fill with clean water and run motor again for 5 minutes.

Right Brushes Prevent Trouble

I have had trouble with starting motors where the brushes furnished by the makers are replaced by others which are not the right material. Metite and other metal composition brushes have from 3 to 4 times the conductivity of carbon and replacing a composition brush with one of carbon will not allow a sufficient quantity of current through to turn the

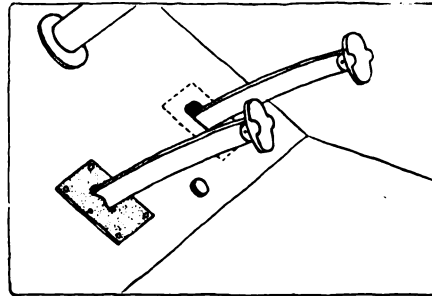


Fig. 1—Method of tacking sheet rubber over pedal hole to prevent heat from coming through

motor over under load.—M. R. Potter, foreman, Wm. Petry, Hudson, N. Y.

BURNED PLUG POINTS MAKE HARD STARTING

Car owners often complain of hard starting of motor when cold. This is partly due to poor vaporization of gasoline but can be greatly improved by having the ignition system working at full efficiency.

I find that the spark plug points occasionally burn apart rapidly. With a poor, cold mixture the resistance of the gap is very great, and if the points are too far apart the spark is very thin and is not hot enough.

If the points are closed to about $\frac{1}{40}$ th of an inch the motor will start 100 per cent better.—M. R. Potter, foreman, Wm. Petry, Hudson, N. Y.

When Heating Small Parts in Lead Bath

If finely broken hardwood charcoal is sprinkled over the top of the molten lead in which small tools are to be heated for hardening, the litharge, which accumulates on top of the lead will be prevented from sticking to the tools.

Always Make Two Gaskets—Save One

When making a paper gasket it is an excellent plan to make a second one for

possible future use. Two may be made almost as quickly as one since the duplicate may be made from the original.

FRONT COMPARTMENT KEPT COOL BY RUBBER

Thin sheet rubber may be used to close up the pedal slots in the floor boards and thus prevent the hot air from the motor entering the front body compartment. As shown in Fig. 1, the rubber is tacked to the floor boards around each pedal opening. For the sake of appearance it is slightly preferable to attach the rubber to the underside of the floor, but it is better supported if placed on the upper side, especially if the opening is more than usually large.

Marking Solution for Steel

To give iron or steel a bright copper surface which will show distinctly the lines drawn by scriber, dividers, surface gauge, etc., apply a marking solution composed of 1 ounce copper sulphate, 4 ounces water, and 1 teaspoonful nitric acid. (One ounce is equivalent to about eight teaspoonfuls.) Heating to blue will give a similar surface.

To Preserve Steel From Rust

Take 1 part caoutchouc, 16 parts turpentine; dissolve with a gentle heat, then add 8 parts boiled oil. Mix by bringing them to the heat of boiling water and apply with a brush. It may be removed with turpentine.

Troubles Due to Wrong Contact Lamps

When the series-parallel method of connecting headlights is used, it sometimes occurs that double-contact lamps will be used by mistake where the sockets are designed for single contact. This trouble will be indicated by dim lamps when the switch is "bright" and when the switch is "dim" the fuse will blow.

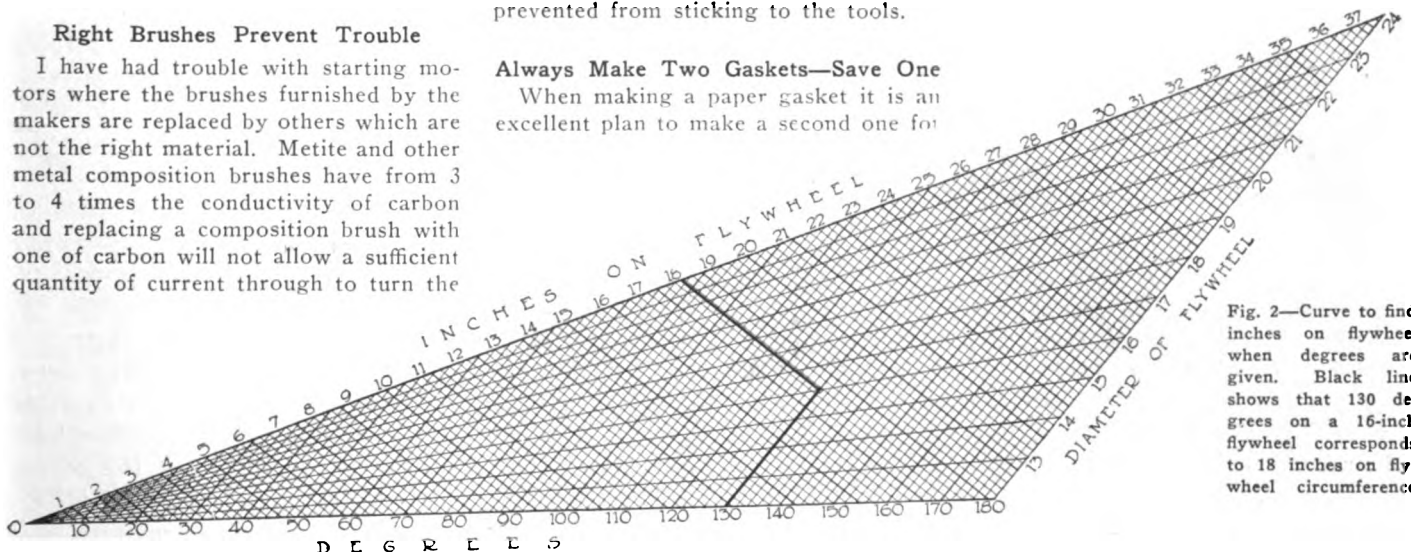


Fig. 2—Curve to find inches on flywheel when degrees are given. Black line shows that 130 degrees on a 16-inch flywheel corresponds to 18 inches on flywheel circumference



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The New Spirit

THERE is a new spirit in the garage trade. It was born last week in Grand Rapids and Peoria. The garage associations of Michigan and Illinois, two of the pioneers in the field, held meetings which differ vastly from any conventions ever held before, though probably others like it will be held.

IN THESE MEETINGS THERE SUDDENLY SWELLED UP A SPIRIT OF UPLIFT, A REALIZATION OF THE NEED FOR IMPROVED CONDITIONS, FOR BETTER BUSINESS, FOR CLEANER GARAGES, FOR BETTER BUILDINGS, FOR BETTER METHODS, FOR A HIGHER LEVEL OF MERCHANDISING AND OPERATION. THE SIGNIFICANT POINT THROUGHOUT IT ALL—AND IT IS THE KEY NOTE OF THE WHOLE STORY—IS THE THOROUGH, GENUINE REALIZATION OF EXISTING CONDITIONS.

Realize Need for Improvement

The man who would improve himself must first realize his need for improvement. To realize this need he must investigate himself. Committees—which too often fail to work—have in these cases investigated the garage trade and laid the facts before the garagemen, including some of those who have been investigated. The result has been startling and the results which should and will follow may be more startling still.

The movement for uplift has been growing silently

but has now found public expression. Sentiment has crystalized. Undoubtedly progress will be faster now.

Ways and Means

THE old standbys in organizations which seem to be slipping and on the backward path often wonder what can be done to stimulate interest and pull the association back to its former high level. A remedy seems to have been found by the Garage Owners Association of Illinois. It is still one of the strongest of organizations, but felt the need of greater strength. Therefore, it has named a Committee on Ways and Means. This committee consists of three of the liveliest men and hardest workers in the body. It is their task to discover ways and means of sending the association along the upward path. A similar committee can do much for any other association if it is needed, and there probably is a need for it everywhere, for no matter how good any association is it can be better.

Be Even Tempered

WITHOUT doubt there are many, many things in need of rectification in the garage trade, and at the Grand Rapids and Peoria conventions some of them found expression. There is a strong feeling of indignation on the part of the garagemen against certain manufacturers of cars, who, they claim, are endeavoring to hamper the garageman in his repair work and convince the car owner that the garageman is incompetent.

Committees will be named to visit manufacturers. An effort will be made to arrive at an understanding. For the benefit of the industry as a whole the manufacturer who is called upon should receive them in the proper spirit. They have not come to fight, but to discuss. Such discussion is always beneficial.

Be Different

IT CAN be said almost without fear of contradiction that nine of ten accessory store windows look exactly alike—at least they look alike to the casual passerby, the potential purchaser.

The effect of this sameness is not hard to analyze, nor its bad effect difficult to see. If your wife saw the same display in every department store window in the city she would soon become discouraged. She is looking for the new things that are being brought out, the very latest in merchandise. If she sees the same things in every window she quickly comes to the conclusion that there is little if anything that is new; she does not even trouble to enter the store.

The display window is for display—for a display of newness. If you have nothing really new to display, then why not display the older merchandise in a new way? Get out of the rut. Let the other dealers continue in the old way. Let every OTHER window be alike. But have yours different.

Fall Is Logical Time for Show

—Cincinnati Dealers

Second Autumn Exhibition
Proves Its Value—Closed
Cars Sell Well—Dealers
Attend in Great Numbers

CINCINNATI, October 9—The opening day of the sixth annual Cincinnati show on Saturday, October 2, was the biggest of any opening day in the history of Cincinnati shows. A heavy rain which lasted all day and evening interfered with the attendance Monday. All the available space in North and South Halls of Music Hall is taken up with exhibits.

There are about 50 exhibitors and about 300 cars on display. The territory served by the exhibitors includes Ohio, West Virginia, Indiana and Kentucky, and parts of Virginia and Tennessee. Some of the distributors here have a territory covering several states, while others extend over only one state or part of a state, while still others have only three or four counties in southern Ohio. Some of the exhibitors distribute their cars through only five or ten dealers, while others have from 70 to 100 dealers. Altogether, invitations have been sent out to 1,300 dealers to attend the show and the indications are that all of them will be here and most of them will bring some of their customers with them to show them models which they do not have in their own establishments. Many of these dealers have only one or two models in their places of business, whereas here they will find all the different models turned out by their respective factories, in some cases six or more.

The Welbon Motor Car Co., Hudson dealer, has 62 dealers and distributed 1,000 cars this year. W. G. Welbon, its president, stated that his company, as well as all others in this territory, expects to do at least three times as much business next year as in 1915. He considers general prosperity the controlling factor in the sale of cars and he predicts that unprecedented prosperity is in store for the people of the Cincinnati territory. He bases his prophecy on the fact that the various machine tool factories are running full blast; that the mines are all working to their capacity, that the iron industries are all busy, that the farmers are enjoying the biggest crops in their history. He contends that prosperity is already here and as an evidence of it points to the fact that the theaters are all packed.

Welbon declares that the value of the show as a sales place is big, not only for the city proper but for the entire territory served from Cincinnati as a dis-

tributing center. This is indicated by the sales made at the show and by the customers brought from outside points by dealers to see various models before placing their orders. He says that his company as well as others expects to appoint a number of additional dealers during the show.

Dr. H. O. Brunton, president of the Cincinnati Automobile Co., Stutz distributor for southern Ohio and all of Kentucky, except the county in which Louisville is located, also part of West Virginia and part of Indiana, has only five dealers at present but expects to appoint more during the exposition. He put out 150 cars this year—all he could get—and he feels confident that his company will do a much bigger business next year. He says the exposition has a great value in addition to the sales that are made through it, and that is through the enthusiasm it creates and in keeping up the spirit of the automobile industry.

E. A. Kruse, of the Kruse Motor Car Co., has a territory covering three counties in southern Ohio, Hamilton, Butler and Clermont, and sold 300 Maxwells and 50 Mitchells during the present year and looks forward to a much greater business next year. He has 10 dealers.

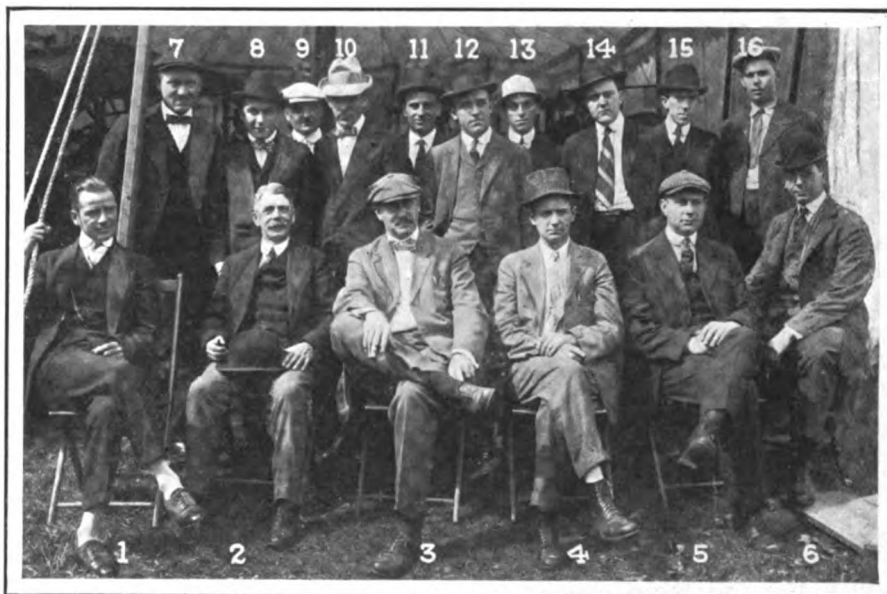
Arthur G. Fischer, of the Fischer Auto & Service Co., has a territory embracing four counties in southern Ohio and 25 dealers. They distributed 150 Chal-

mers in Cincinnati and an equal number in the rest of their territory, and about 200 Saxons in Cincinnati and 200 more outside of the city during the present year. He also anticipates a big increase.

This is the second fall exposition given by the Cincinnati dealers, the other four having been given in the spring, nearly all in February. At first there was some opposition to changing to fall, but now all 28 dealers constituting the exposition association are unanimous in favor of fall expositions. They say that the fall is the logical time for holding the exposition, because dealers and prospective buyers all want to see the new models which make their appearance in the latter part of August, September and October. They point out that by spring nearly all models have been on the market for four months or longer and consequently are no longer new.

More closed cars are being sold in the Cincinnati territory than ever before. In fact, they are becoming very popular. People here are getting away from the idea of putting their cars away for the winter. Some of them say they would rather lay them up for the summer. They don't want to stand on corners and wait for street cars in winter. Cars with two bodies and combination closed and open cars are coming into service. One prominent dealer made the prediction that within a year there will be no high-priced or even medium-priced car with the ordinary single body, but that all will be semi-closed cars, convertible for summer or winter use.

Some Members of the Rockford, Ill., Dealers Association



Those who dropped business at the recent tent show, Sept. 22-25, long enough to be snapped: 1—Dave Barrett; 2—W. B. Taylor, president Motor Car Dealers Association; 3—J. S. Joslyn (Jeffery); 4—L. J. Theiss (Franklin); 5—A. T. Hutchins (Buick); 6—R. A. Herrington (Detroit Electric); 7—Henry Roberts; 8—Clifford Erb (Cadillac); 9—C. A. Widholm (Chevrolet); 10—Fred Carlson (Cole and Paige); 11—Max Binn (Hudson and Maxwell); 12—L. L. Ledkicker (Ford); 13—H. V. Gleasman (Dodge and Studebaker); 14—F. C. Andrews (Lewis and Grant); 15—Al Persons; 16—Eric Gustavsen

The RETAIL NEWS

SOUTH

The Samson Engineering Co., Louisville, Ky., has moved its offices from the Snead building to the Starks building.

The Compression Inner Tube Co. has opened an office and salesroom at 662 South Fourth street, Louisville, Ky.

Ira Barnett, King dealer, has opened an office and salesroom at 206 East Broadway, Louisville, Ky.

The East Nashville Auto Co., Nashville, Tenn., has purchased the garage of E. Nicks at 110-12 Woodland street. The officers of the new company are: President and manager, Charles R. Mangs; vice-president and assistant manager, W. K. Patterson; secretary, J. S. Lackey, and treasurer, C. L. Watkins. The company handles the Oakland.

The W. E. Cody Sales Stable Co., Columbus, Ga., has installed an accessory department and will handle Diamond and Firestone tires.

The J. B. Kennedy Co., Louisville, Ky., has been appointed Master carburetor dealer.

The West Tennessee Dorris Co., Memphis, Tenn., Dorris and Scripps-Booth dealer, has opened salesrooms at 276 Monroe avenue. T. A. Alden, George S. Johnston and J. L. Dunlap are the members of the firm.

SOUTHWEST

The Reo Motor Sales Co. has opened a salesroom at 418 South Boston avenue, Tulsa, Okla.

Evans & Reser, Wichita, Kan., will open a salesroom for Auburn cars at 123-125 South Lawrence avenue. The members of the firm are Carl Evans, late chief engineer for the Jones Motor Car Co., and Charles Reser, assistant manager of the same company.

E. S. Berry and Nell Helm, Caruthersville, Mo., will open a Saxon salesroom.

Bert A. Stevens, his son, F. B. Stevens, and A. B. Gauge have opened an accessory store at 432 St. Louis street, Springfield, Mo.

The Mound City Buggy & Auto Co., St. Louis, has taken the agency for the Halliday in a territory including Missouri almost as far west as Kansas City, southern Illinois, all of Arkansas and a large part of Kentucky. F. J. Koehler probably will continue to act as distributor of this line in St. Louis.

A. H. Sullivan & Co.'s repairshop, formerly at 4145 Laclede avenue, St. Louis, is now located at 4527 Delmar boulevard.

The Diamond Motor Co., St. Joseph, Mo., has increased its capital stock from \$2,500 to \$5,000.

The Sterling Supply & Service Co., organized recently to conduct an accessory, garage and repair business, has just opened its new building at Euclid and Laclede avenues, St. Louis. The garage is 160 x 120.

EAST

Morris B. Slack, Westchester, Pa., will erect a garage in West Grove.

Wm. Mitchell has purchased a half interest in the Forest Street Garage, Jamestown, N. Y., and will act as manager. The Auburn is handled and accessories stocked.

The Miller Auto Co., Lebanon, Pa., Haynes dealer, has enlarged its garage on Manheim street and has taken on the Ford and Studebaker.

The James Specialty Co., Fairmont, W. Va., has recently opened up. The officers are: President, E. J. Estes; secretary and

treasurer, John W. Haney. The company handles accessories.

Dr. S. S. Hess is building a garage on Front street, Freeland, Pa. The building will be 32 x 90 feet, two stories high, and will accommodate 60 cars.

The Eastern Motor Corp., Philadelphia, has incorporated for \$150,000 and has opened headquarters at 1634 Chestnut street. The president and treasurer is G. Herbert Taylor, the general sales manager is A. C. Maucher, and Robert J. Scott is one of the directors. The company will handle the Standard car.

F. M. Johnston, Mohawk, N. Y., will build a two-story garage at a cost of \$4,000.

Smith Bros., Dolgeville, N. Y., will enlarge their garage by the erection of a 34 x 30 addition.

Albert C. Wood, 52nd and Susquehanna avenues, Philadelphia, will build a garage at a cost of \$6,000.

Ross & Steel, Latrobe, Pa., will build a one-story garage, 50 x 100 feet, at a cost of \$7,000.

The Hueblin Garage has been incorporated in Hartford, Conn., with a capital of \$15,000 by Morgan J. Bliss, E. Henry Hyde and Rubin Taylor. The Thompson stables at 25 Gold street will be converted into a garage.

The Gilson Sales Co., 213-215 Guilford avenue, Baltimore, has become the Maryland distributor for the Canvas Tread Tire Co., Utica, N. Y.

The Randall Mfg. Co., Scripps-Booth, Trumbull and Bell distributor, has taken possession of new quarters, 16 West Mount Royal avenue, Baltimore. The company will maintain a service station in the rear of the showrooms and offices. William D. Randall is at the head of the company.

The Globe Tire Co., formerly located at 228 West 58th street, New York, has moved to larger quarters at 1853 Broadway.

H. F. Bailey, Westfield Garage, 1 George street, Westfield, Mass., is about to move into a new garage.

The Auto Supply Co., Washington, D. C., has opened at 1318 14th street, N. W., and is carrying accessories. The firm is composed of Henry C. Specter, formerly connected with Miller Bros. as territory representative, and Alfred Liebman, of Washington. The firm will handle the Quaker tire.

The Warrington Motor Car Co., Washington, D. C., has located in new quarters at 14th and C streets, N. W., having removed from 1811 14th street. The interior of the new salesroom is finished in buff, with white trimmings. The salesroom is 30 x 60 feet. The interior is lighted by inverted electric lights.

Emerson & Orme, Washington, D. C., agents for the Detroit electric, have commenced the erection of a two-story building, 135 x 135, to contain salesrooms, service station and garage, on M street, between 16th and 17th. On the first floor there will be two salesrooms for new and used cars. Offices, waiting room and garage will be on the main floor, and a charging plant on the second floor. Provision has been made for a third story.

The Rensselaer Garage is being opened in Troy, N. Y., opposite the Hotel Rensselaer, and will occupy four floors and a basement. It will be managed by J. H. Silsby. The

Ford, Hupmobile and Peerless will be handled, and also accessories.

CANADA

The Auto Tire & Vulcanizing Co., Winnipeg, of which Charles Young is manager, will occupy the old quarters of the Cadillac Motor Sales Co., 369 Cumberland street. The latter company will move to new premises on Carlton street. The former company is distributor of Firestone tires.

MOUNTAIN

The King Auto Sales Co., Salt Lake City, has changed its name to the King Eight Auto Co. It will be located at 162 East First South street.

H. A. Turner, Tucson, Ariz., will do business in the future under the name of the King Motor Sales Co.

The Universal Motor Car Co. has purchased the business of Osgood & Nesbit, Ford agents at Greeley, Col.

The Boss Rubber Co., 1548 Broadway, Denver, agent for Kelly-Springfield tires, has been reorganized. S. Z. Silversparre, a member of the firm for several years and recently president of the company, has sold his interest and moved to El Paso, Tex.; F. P. Lilley, formerly vice-president, has been made president; Arthur Lewis, formerly manager of the Salt Lake City branch, is vice-president, while H. G. Peters and Robert Rhea still are treasurer and secretary respectively.

J. M. Patrick, 1515 Cheyenne Place, Denver, Lewis distributor for Colorado and Wyoming, has secured the agency for the Abbott-Detroit.

The Ford Motor Co. has closed its downtown salesroom at 1551 Broadway, Denver, and will handle all regular city sales from the assembling plant at South Broadway and Kentucky avenue.

W. T. Andrew has purchased the Empire Garage, 1846 Welton street, Denver, from J. F. Gorman & Sons.

PACIFIC COAST

The Stowe Motor Co., Redlands, Cal., has been enlarged, taking in several stores on Orange street formerly occupied by merchants.

The B. & R. Garage, Los Angeles, Cal., owned by H. L. Bernard and G. C. Roepke, is now handling a large accessory stock. Bernard and Roepke recently purchased the garage.

The Broadway Automobile Co., Seattle representatives for the Detroit electric in Oregon and Washington, has recently made a number of changes in the personnel of the company. Those associated in the company are F. A. Wing, Elliott Wiggins and Walter Holland. Mr. Holland was formerly connected with the Anderson Electric Car Co. This concern is also Pacific Coast agent for the Elwell Parker freight car tractors and have the Washington agency for the Philadelphia Storage Battery Co. They have recently secured the representation of the Walker Electric Vehicle Co. and Lincoln Electric Co., of Cleveland.

The California Sales Co., accessory dealer, has opened a branch in Pasadena, Cal., to handle the business of Pasadena, Alhambra, San Gabriel and vicinity. A branch is also to be opened in San Francisco.

The New Spirit

Page 5

George F. Hoover, Ford agent, Bend, Ore., is building a garage, 50 x 100 feet.

Morris Martin, Seaside, Ore., is building a garage, 100 x 100.

C. A. Ellison and A. H. Skinner, Jr., Tacoma, Wash., have opened a tire salesroom at 750 Helena avenue. They will carry Knight tires and also Wadham oils.

The Saxon Motor Sales Co., Los Angeles, Cal., has opened a new salesroom at 1140 South Olive street.

The Northwest Buick Co., Spokane, Wash., Buick distributor, has leased a garage to be erected on First avenue near Adams street. The building will have a frontage of 50 feet on First avenue, 77½ feet on Adams street and 100 feet on Sprague street.

B. L. Remington and W. L. Maxwell, Stockton, Cal., have formed a partnership under the name of Guarantee Ignition & Battery Co. They will specialize in starting systems.

The Stockton Auto Ignition Co., representing the Willard storage battery, is erecting a building on Miner avenue, Stockton, Cal. The company is also agent for the Splitt-dorf and Bosch companies.

Bell & Hinman have purchased the Twelfth Street Garage in Sacramento, Cal., and will specialize in used cars.

The Travelers' Garage has been opened by Sellinger & De Gaston, Inc., in Sacramento, Cal. The company recently secured the Haynes agency.

J. E. White has opened a Mitchell salesroom and service station at 1104 K street, Sacramento, Cal. He is distributor of the Mitchell for the counties of Sacramento, Amada, Placer, Nevada and Sutter.

MIDDLE WEST

The Hudson Sales Co. has been organized at Springfield, Ill., and will have its office at 428 South Fifth street. The new firm was organized by Merwin Morris, of Pawnee, Ill. The Hudson will be handled.

Ferdinand Larson, Bear Creek, near New London, Wis., is building a one-story garage, 42 x 60 feet in size, the first in the village.

Martin Mohr, operating the Buick Garage at Beaver Dam, Wis., is enlarging his repairshop.

Joseph Geell is building a garage on Main street, Morrison, Ill.

W. C. Starr has purchased the North Main street garage, Decatur, Ill., of James G. Parker, who will retain the agency for the Haynes and will make his headquarters at the same building. Starr is agent for the Overland in Mason and four adjacent counties. The Lincoln Square garage and repairshop, operated for a number of years by Starr, will be retained. George Bopp, in charge of the Reo agency, which has occupied quarters in the Parker building, will move to a new location.

J. E. Seepe & Co. have let the contract for a steel and concrete garage, two stories, 39 x 115, to be erected on Fourth street, Peru, Ill.

The Manistee Garage Co., Manistee, Mich., has added a repairshop and also handles accessories.

The Port Huron Auto & Machine Co. is a new concern at 769 Water street, Port Huron, Mich. George B. Mann is the manager.

The Frank H. Cole Motor Car Co. has outgrown its present quarters at 217 East Front street, Bloomington, Ill., and has leased the building now occupied by the Bloomington Motor Co., Ford distributor. The latter company is completing a building at 305-11 West Jefferson street and as soon as possession is

taken of the new structure the Cole company will move into the one vacated.

The Western Auto Co., Muskegon, Mich., which handles the Ford, will soon erect a new garage on West Western avenue.

The C. H. Nichols Automobile & Trimming Co. has moved into its new quarters on West Hamblin avenue.

A. A. Breitenwischer and Del. Begole, Ann Arbor, Mich., have dissolved partnership in the Breitenwischer Auto Co. Breitenwischer will continue to operate the Ford garage and sell Ford cars, while Begole will handle the Overland at 327 South Main street.

Sylvester Ostrander has rented the Romeo Motor Sales Co.'s garage in Romeo, Mich.

Ezra Kirk, Toledo, O., has opened a retail accessory business with the United Garage at Jefferson and Ontario streets.

The Baraboo Motor Car Co., of Baraboo, Wis., has been organized by Orriel L. Philbrick and C. L. Roser to do a sales agency business and will have headquarters in the Prothero-McGinnis Co.'s garage, which is being enlarged and remodeled. The new company will sell the Studebaker in several counties in western Wisconsin.

S. F. Postal and William Turner have opened an automobile business in Evart, Mich., and are handling the Dodge, Ford, Oldsmobile and Oakland cars.

Lunt & Davison, Flint, Mich., Buick dealer, has moved into new quarters on East Third avenue. They control Genesee, Shiawassee, Lapeer, Livingston counties and thirteen townships of Oakland county.

John Howden, White Lake, Mich., who has been handling the Oakland cars in White Lake township only, has now been given the townships of Holly, Rose, Springfield and Groveland in addition to his former territory.

The Haydock Motor Car Co., Richmond and Carr streets, Cincinnati, announces the completion of a four-cylinder motor car called the Haydock. The car is of the lighter type and sells for \$720.

The Ohio Tire Service Co., Toledo, has been incorporated with a capital of \$1,000 to do a tire repair business by George W. Henne, Michael E. Hubbard, Samuel Love, Joseph M. Love and A. C. Moore.

Hooker & Son's garage and livery, Charlevoix, Mich., is being enlarged by the addition of two buildings.

A. E. Bonner has opened a garage and repairshop for Overland and Ford cars in Coopersville, Mich.

N. H. Reinberg, McBain, Mich., has opened an automobile salesroom at 303 North Mitchell street.

Richard and James Comstock have purchased the garage business of Charles Miller in Berrien Springs, Mich.

The New City Hall Garage, Hillsdale, Mich., has been opened. B. R. Barker is the owner. His assistants are Leon Croose and Harry Raymond.

The Albion Garage Sales Agency, Albion, Mich., has moved into new quarters at Michigan avenue and Superior street.

E. H. Ramm, hardware dealer, New London, Wis., Ford agent, is adding a garage to his store and warehouse.

The Studebaker Corp. has opened a factory branch in Saginaw, Mich., under the management of J. O. Andrews, at 521 Genesee avenue.

W. F. Horning and A. G. Moore, Saginaw, Mich., have formed the Horning & Moore Auto Sales Co., with headquarters at 529 West Genesee avenue.

The Berton A. Spring Co.'s garage, Grand Rapids, Mich., recently destroyed by fire, is being rebuilt at an expense of \$8,000.

The Ph. Gross Hardware Co., 218-222 Third street, Milwaukee, has been appointed Wisconsin dealer by the American Ever-ready Works, New York.

Frederick Glines, Omro, Wis., has leased the Leighton building and is remodeling it for a garage and repairshop. Glines is Ford agent.

E. E. Senberth, Kilbourn City, Wis., will erect a fireproof garage to cost about \$7,500 with machine shop equipment. It will be of concrete construction, one-story and basement, 50 x 120.

Vernon Hooper, Grandville, Mich., has bought the business of the Hammond Auto Co. and will continue to handle the Overland.

The Square Deal Repair Shop has been opened at 715 Ottawa avenue, N. W., Grand Rapids, Mich., by P. Bolt and Martin Quinten.

The Battery Service Co., 2308 Locust street, has obtained the agency for the Exide batteries in East St. Louis, Ill.

E. H. Wilson, Indianapolis, Indiana distributor of the Scripps-Booth, has moved to 249 N. Pennsylvania street, the salesroom formerly occupied by the Lyons-Atlas company. The service station at 924 N. Illinois street will be retained.

The Walton Motor Co., Evansville, Ind., is building a garage and salesroom and will handle the Packard car.

J. A. Brady and W. N. Littlewood have purchased the Stats Garage at 323-25 West John street, Madison, Wis., from Frank Stats.

John Luke and A. H. Boltz, Burlington, Wis., have leased the Ford building and will use it as a garage. An addition will be built for a machine shop.

The Reliance Garage, 6520 Greenfield avenue, West Alliance, Wis., is building an addition to its machine shop.

The Dicke Motor Car Co., Eleventh and Franklin streets, Manitowoc, Wis., will build a garage at a cost of \$11,000. The building will be 60 x 120 feet, with no posts. The Ford is handled.

W. E. Norman has opened a repairshop at the corner of Butler street and Cadiz pike, Chicago.

The Ohio Tire Service Co. has been incorporated in Toledo. It has taken over the store formerly occupied by the Erie Tire & Rubber Co., 310 Ontario street.

The Motor Specialties Co., Muskegon, Mich., is building a machine shop at a cost of \$10,000.

The Lawton Tire & Repair Co., 1110 Huron road, S. E., Cleveland, O., has opened a tire salesroom and will give day and night repair service.

The Browne Supply Co., Toledo, O., has moved into new quarters at the corner of Jefferson and Erie street, where an entire building is occupied.

Dr. L. J. Knickerbocker, Hartford, Wis., will erect a garage and machine shop, 55 x 80 feet, two-story and basement, on River street, Hartford.

The Teutonia Avenue Garage, Inc., Teutonia avenue, near Clarke street, Milwaukee, has changed its corporate style to Franklin Garage, Inc. The company has just taken occupancy of its new garage. August F. Schunk is secretary and treasurer.

J. Hamacheck & Sons, Two Rivers, Wis., Cadillac and Oakland dealer, has started work on a new garage and service station on Washington street, Two Rivers. It will be 50 x 120 feet.

Ward Taylor, who was in the garage business in Beaverton, Mich., has moved to Shepherd, Mich., and has taken over the repair department of the Parmelee Garage.

The Officeless Manager of the Northwest

The Open Door and a Glad Hand Characteristic of the World's Greatest Distributing Territory

By Ray W. Sherman

MINNEAPOLIS, October 11—In some parts of this country, especially in the more easterly east, the man who becomes a manager or president of a business becomes a candidate for a private office. And if you want to see the manager you first have to interview the office boy.

In the Northwest the situation is reversed. When a man becomes a manager or president of a company he is most likely to be found occupying the post at the door, and if you want to see the office boy that generally is accomplished through the medium of the manager or president.

True, there are private offices. Frederick E. Murphy, who distributes the Mitchell and Paige, has one. It makes a most excellent boxing room when the weather is cool and the boys about the place say the boss is no easy victim. But Murphy himself sits at a desk in the rear center of the salesroom floor, and if you want to see Murphy you can do that from the opposite side of the street. If you want to talk to him you walk in and talk.

Easy to Reach Managers

This accessibility of managers characterizes the distributors of the Northwest. The dealer who comes to the Twin Cities to see the man who ships him his cars has no trouble finding the man. The dealer generally has been there before and knows the way, and if the distributor should by any chance have what may look like a private office—but isn't—the dealer wanders in and gets right down to business. No monkey-work or cooling of heels.

Since it isn't done everywhere it is natural to ask: Does it pay? Is it good business? The best answer is that the distributor of the Northwest is a king among dealers. He talks in trainloads where dealers in some other sections talk in terms of single cars; and with organizations of as high as 350 or 400 dealers there is a loyalty and friendship that cannot fail to make business not only good but pleasant.

There is also this: To the dealer his distributor is a man, not a corporation. When the Buick dealer comes in he doesn't come to see the Pence Automobile Co. He comes to see Harry Pence. And when the Studebaker man comes in to find why he can't get more cars he never considers that he is calling on the branch of the Studebaker Corpora-

THIS is the third of a series of articles by Ray W. Sherman, who is traveling through the Northwest to get close to the problems of the dealer, the garageman and repairshop operator. The fourth article of the series will appear in an early issue.—The Editor.

tion. He is coming to see J. A. Graham, the manager.

This open-door policy has developed a personality in business which in turn creates loyalty, and what is more valuable as an asset than a loyal dealer?

One of the greatest examples of this personality of business is found in one of the great hardware and accessory jobbing houses of St. Paul. It has been in business 60 years and has customers who have been with it more than 50 years. Some record!

Officers All Accessible

When you enter the front door of the big brick building which has grown from personality in business there is no office boy, no barrier fence. Instead of the officers of the company being hidden in private offices they are all grouped around the door where the office boy would be.

The first man is an old-timer with the company and listed as advertising manager and assistant sales manager. At his left is the assistant sales manager and son of the president. Just back of him is his father, the president of the company.

At the right of the president are the desks of the secretary and vice-president and treasurer. No member of the company is too good to greet a customer, and it is maintained that the best man to extend the glad hand to a customer is the man who has the greatest interest in the business, financial and otherwise. These people tell stories of instances in which the theory has worked out to the company's advantage.

Pence Removes Office Door

Harry Pence, of the Pence Automobile Co., Buick, is one of those who has what could be made into a sentried private office—but it isn't. There was a door on it, but it has disappeared. Furthermore, the people in the outer office don't say: "What do you want to see

Mr. Pence about?" or "He's very busy, can you wait?" The young lady, when the Motor World representative called, looked over her shoulder, saw that Mr. Pence was in the office, and said: "Right in there. Walk right in." And Pence immediately began to tell what a great country the Northwest is.

At the Studebaker branch the same thing happened. The operation was repeated almost exactly. And the manager, J. A. Graham, repeated Pence's story of the Northwest. The motor car men of this section, instead of hiding in private offices, seem to want as many people as possible to come in so they can tell them the enthusiastic, boosting story of the great Northwest.

Some of the distributors have mezzanine floors on which they could hide if they wanted to, but they seem to make this an opportunity of making themselves more conspicuous to the public. Open-face offices of this kind are found in the places of the Reilly-Herz Co., Alter and New Era; Stimson Automobile Co., Empire; Bowman & Libby, Inc., Overland. The Overland stenographer said: "Mr. Bowman's right up stairs in his office." E. B. Stimson said: "Stairs are at the end there. Come right up." And Reilly and Herz are always in plain view.

At the La Crosse Auto Co., Imperial and Dort, Manager B. R. Kelly is inside a little fence on the salesroom floor. Manager John N. Knutson of the Northwest Haynes Co. can't be missed once you get inside the door. O. H. Gray, of the Gray Motor Co., Studebaker dealer in Minneapolis only, is as conspicuous as a man in a hansom with the doors open.

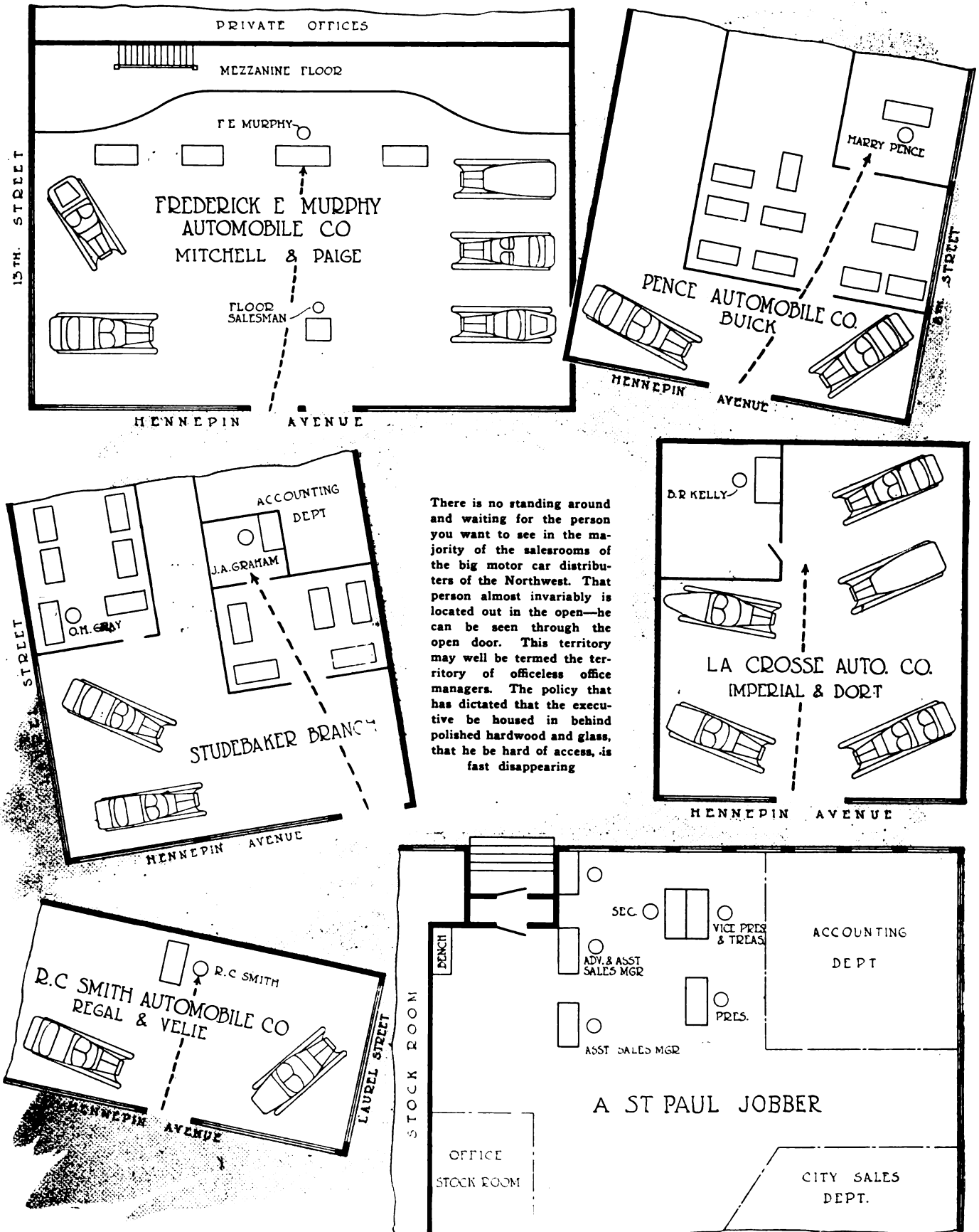
McKay's Office a Coat Room

L. A. McKay, who handles the Franklin, has a private office. It makes a fine coat room because it has a lock and key and when he wants to be sure his coat won't disappear he locks it in the private office.

If R. C. Smith, of the R. C. Smith Automobile Co., Regal and Velie, moved 15 feet to the north he would be on his own doorstep, and if Bert Stimson, of the Minnesota Motor Car Co., Chevrolet, did the same thing he would be well on his way across the street.

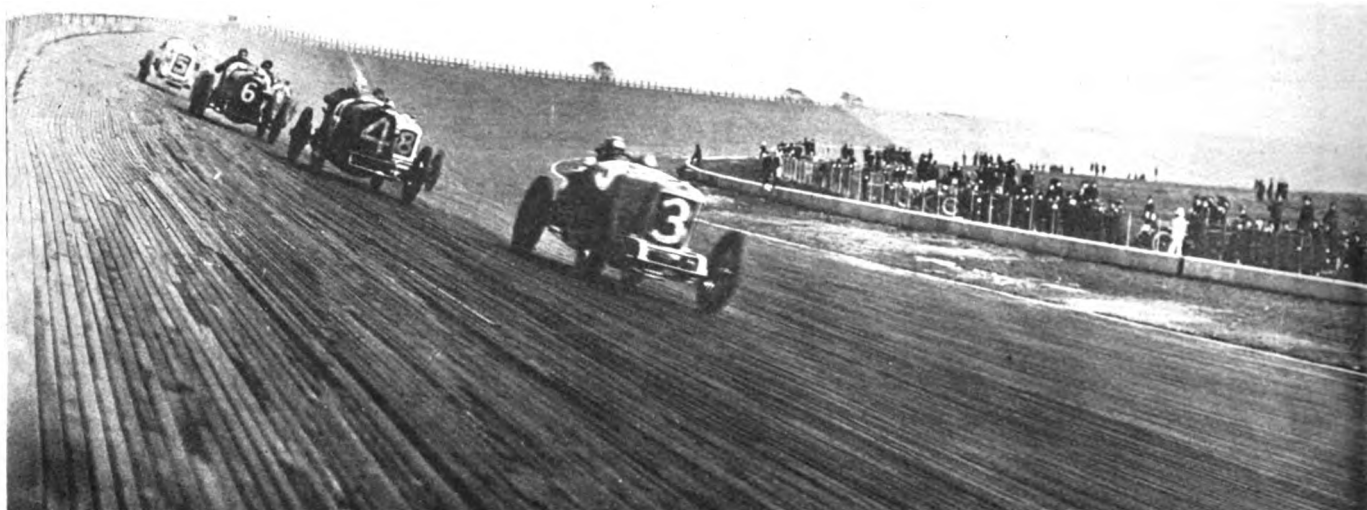
And that's the way it runs. The importance of a man in an organization can generally be gauged by his nearness to the street door, and the nearer the door he is the gladder he is to see people. There is one instance to the contrary. It was in the branch of the—but let's not spoil a good impression. The manager was young and may get over it and, anyway, he probably came from where private offices are in style.

Office Managers Who Can Always Be Found

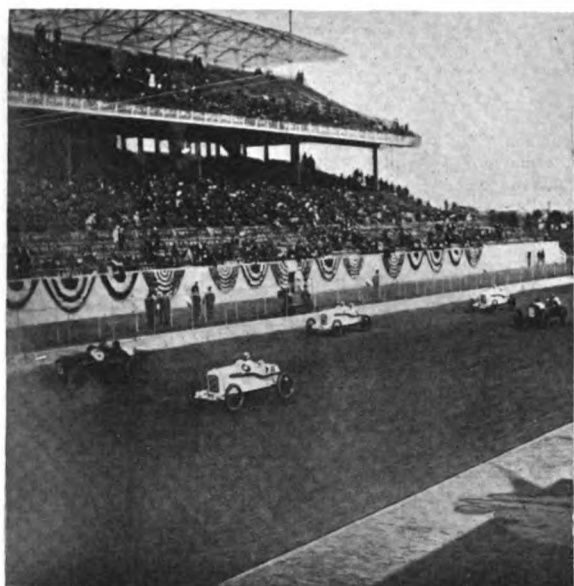


This series of plans showing typical Northwest distributors' offices accompanies the article by Ray W. Sherman on the opposite page

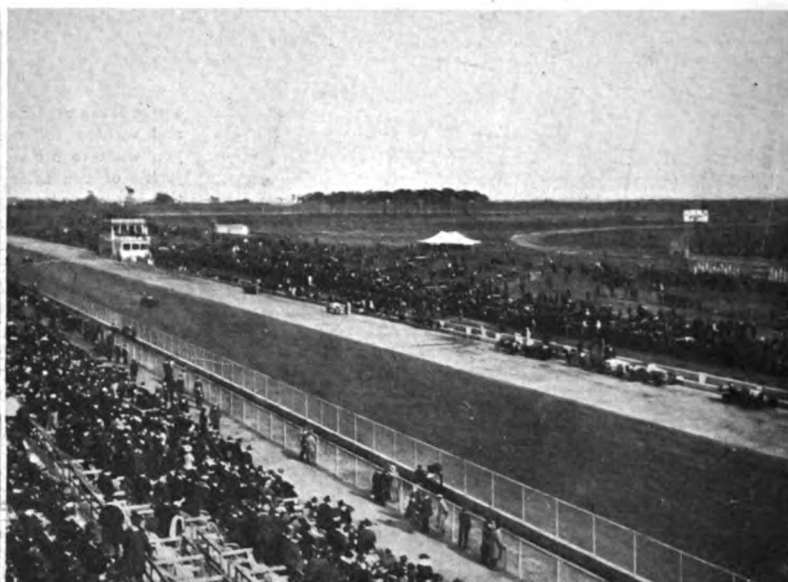
Looking Over the Sheepshead Speedway—



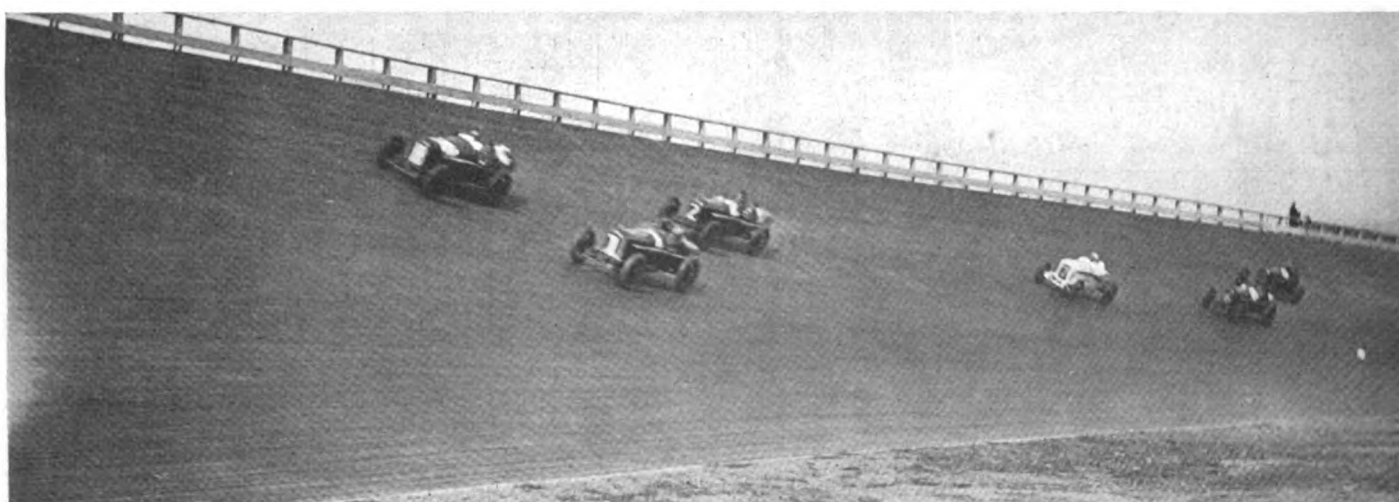
The cars went into the turns and roared around the banking without the shutting off and slowing down so familiar on flat tracks. Here is shown a brush early in the race; Barney Oldfield is leading the group with Bob Burman at his tail and Wilcox and Gil Anderson following



In the grand stand the exciting moments were when the cars shot by at a speed well over a hundred miles an hour. Note how the three white Stutz cars hung together



Looking from the grand stand, the view of the track was magnificent. The steep banking on the turns held the cars up to view and kept them in plain sight for almost every inch of the hotly-contested battle of speed



Aitken, the Peugeot driver (No. 2), who went out with a cracked cylinder in the 120th lap when leading, had a trick of increasing his speed and shooting past the other cars on the turns. This picture shows him playing his favorite game

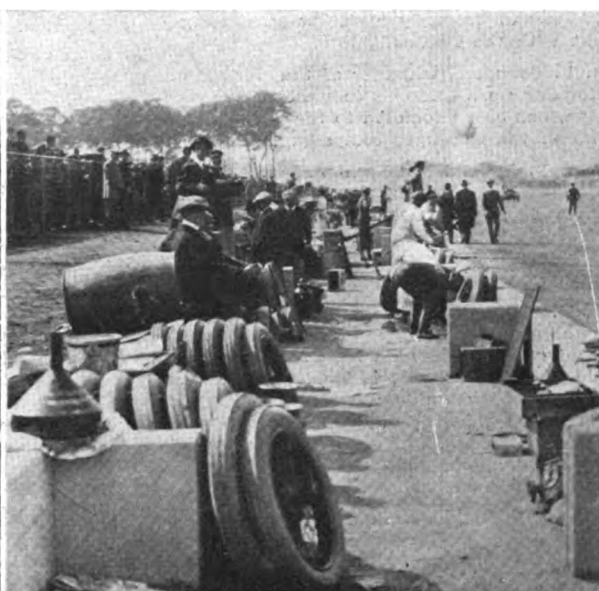
—While Long Distance Records Were Smashed



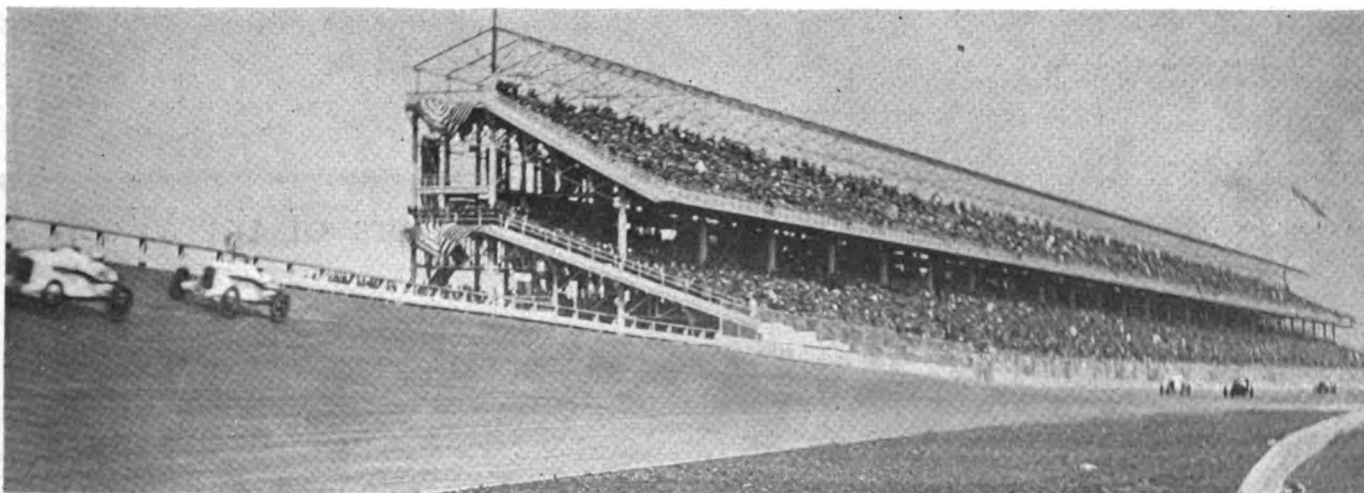
Looking from the eastern end of the grand stand at the point where the straightaway merges gradually into the 25-foot high banking. At the extreme right is the plank roadway over one of the big tunnels that lead into the oval inside the track



It was a remarkable sight to see the vast "herds" of motor cars that assembled in the infield, which they began to do long before the time for the start of the race. "Parking" might well have been "packing"



In the pits, which extend along the track opposite the grand stand, every tire, can and tool had its scientifically determined place, and the men were drilled to perfection



Earl Cooper in one of the Stutz cars is leading with Tom Rooney a length behind on top of the banking. Gil Anderson, the ultimate winner, can be seen in front of the grand stand. Cooper was eliminated in the 24th lap by the breakage of a valve, while Rooney finished second

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

J. G. Perrin has joined the Timken-Detroit Axle Co.'s organization in the capacity of chief engineer. **H. W. Alden**, who was chief engineer and vice-president of the Timken company, remains as vice-president.

G. O. Baldwin has been appointed service manager of the Timken-Detroit Axle Co. He formerly held similar positions with the Cadillac Motor Car Co. and the Studebaker Corp.

J. M. Ready has been appointed office manager of the Timken-Detroit Axle Co.'s metal products plant. He was assistant to comptroller Leslie Williams, of the Timken company.

F. H. Maisonneville has been appointed assistant to **W. H. H. Hutton, Jr.**, director of purchasing of the Timken-Detroit Axle Co. He was formerly assisting purchasing agent with the Packard Motor Car Co.

R. L. Saunders, manager of the Gerlinger Motor Car Co.'s interests in western Washington, has been promoted to the vice-presidency of the Gerlinger company.

John B. Pollard has been made president and general manager of the Bittel-Leftwich Service Co., Springfield, Ill. He succeeds **A. Turner**, who has been transferred to St. Louis to take up a new birth with the same firm in that city.

A. H. Collins, vice-president and assistant general manager, and **V. S. Hibbard**, sales and advertising manager, have severed their connection with the R-C-H Corp., Detroit. Their resignation takes effect November 1. It is stated that Collins and Hibbard will assume management of production and sales for a new company, announcement of which will be made in a short time.

Robert Allan has been appointed district branch manager for northern California by the Burd High Compression Ring Co., Rockford, Ill. His headquarters will be at 847 Phelan building, San Francisco.

G. L. Greene has severed his connection with the Waverley Co., Indianapolis, to become affiliated with the Indianapolis service station of the Exide Battery Co. He will be assistant manager.

J. E. Grady has succeeded **W. T. Bush** as general sales manager of the Studebaker Corp. of Canada. He will devote all his time to the retail trade.

Frank B. Ansted has been named vice-president and general manager of the Lexington-Howard Co.

Lee Olwell, vice-president of the Chalmers Motor Car Co., has resigned, his resignation to take effect November 1.

Sheepshead Bay Meet November 2

NEW YORK, October 12—Tentative plans have been outlined for a special race on the Sheepshead Bay Speedway, Election Day, November 2, at which probably six of the leading winning drivers of the year will compete. It is purposed to have \$12,000 in prizes, \$1,000



JOHN H. STUBBE
Locomobile, Pittsburgh

District Representatives

XXVIII

This is No. 28 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

John H. Stubbe, who is district representative of the Locomobile in Pittsburgh, entered the motor car business in 1900 when he turned his attention from the manufacture of special machinery to the building of electric automobiles. The concern, of which Stubbe was president, was the Liberty Engineering Co., Pittsburgh. A number of successful cars were built; two were exhibited at Madison Square Garden, New York, in the 1902 show. In 1904 Stubbe sold his interest in the Liberty company and became president of the Fort Pitt Automobile Co., Pittsburgh, which erected what was then the largest garage in the city. In 1905 he became connected with the Locomobile company and the connection has been continuous to date; in 1911, when the company opened its branch house in Pittsburgh, he was made manager.

to be given as a guarantee of expenses to each entry. A race of 50 miles with \$2,000 in prizes, and one of 100 miles with \$4,000 in prizes will be run. Stutz has announced that none of his cars will be in the contest, although there is a possibility that Cooper or Anderson may drive other makes. The drivers assured today are Resta, Rickenbacher, Aitken, Oldfield, Burman, and perhaps Anderson or Mulford.

COUZENS RESIGNS FROM FORD MOTOR CO.

DETROIT, October 12—As a sequel to the Dodge Brothers selling their holdings in the Canadian Ford company, due to dissention over Henry Ford's views, it became known today that **James Couzens**, vice-president, treasurer and general manager of the Ford Motor Co., has resigned from active connection with the great concern for similar reasons. Disagreement with Ford's recent public utterances on the war and preparedness is given as the direct cause of the resignation. Couzens is said to be disgusted with Ford's stand and the split is a direct result of the use of the Ford Motor Company's publication, the Ford

Times, for the expression of Mr. Ford's views.

James Couzens' association with Henry Ford extends over a period of about 13 years and goes back to the very early days of the present Ford enterprise. Although severing active connection, Couzens retains his financial holdings in the company. He owns 11 per cent of the stock. A meeting of the board of directors is scheduled for tomorrow, at which action will be taken on the matter.

Henshaw Adds To Personnel

BOSTON, October 11—The Henshaw Motor Co., Dodge distributor, has materially enlarged its organization. The additions include **W. L. Shepard**, formerly treasurer Shepard Mfg. Co., Melrose; **W. A. Maynard**, formerly Chalmers dealer in New Haven, Conn.; **T. A. Gould**, **I. W. Sibley**, **F. W. Bailey**, **F. H. Lewis** and **E. A. Walker**.

Davis Gets Omaha Moline Branch

OMAHA, October 9—The branch of the Moline Automobile Co., East Moline, Ill., has been sold to **R. E. Davis & Co.** The deal includes the entire State of Nebraska and western Iowa.

Dealer Factory Visitors of the Week

WESTCOTT MOTOR CAR CO.

O. E. Powell, Washington Court House, O.
Chas. S. Burke, Springfield, O.
A. W. Tindall, Hartford City, Ind.
T. W. Tedder, Akron, O.
L. W. Fisher, Columbus, O.
C. F. Young, Chicago
J. L. Wiese, Champaign, Ill.

PACKARD MOTOR CAR CO.

L. R. Foulkes, Packard M. C. Co. of Philadelphia
A. E. Gluck, Packard M. C. Co. of New York
Jos. Delaney, Packard Motor C. Co. of N. Y.

A. L. Alexander, Central A. & S. Co., Waterloo, Ia.
C. H. Goss, C. H. Goss Co., St. Johnsbury, Vt.
C. A. Geerkens, H. Englebert & Co., The Hague, Holland
P. K. Russell, Packard M. C. Co. of Pittsburgh
A. E. Jones, F. E. Avery & Sons, Columbus, O.
L. T. Shelton, Packard Missouri Motor Co., Kansas City
R. D. Coulter, Packard M. C. Co. of Chicago
G. M. Chase, Mandery Motor Car Co.,

Association News

COOPERATION NEEDED

CHICAGO, October 9—The need for closer cooperation between manufacturer, dealer and garageman in the electrical field was the keynote of the fourth annual meeting of the Chicago section of the Electric Vehicle Association of America, held at the Hotel La Salle, Oct. 4. About 80 members were present.

The report of Harry Salvat, chairman of the garage committee, exemplified the necessity for closer cooperation among those affiliated with the electric field. He told of having made an investigation among the dealers in gasoline cars, visiting 17 places on Michigan avenue. To each dealer he volunteered the information that he was wavering between the purchase of a gasoline or electric car, and declared that all of the 17 dealers advised against the purchase of an electric car, giving as their reason therefor that the makers of electric cars were on the decline and were about to go out of business. He said he also made inquiry of two dealers in electric cars, telling each that he was undecided as to what make of electric car he would buy, and declared that each one had boosted his own line and knocked the other, saying that the competitor was going out of business. Mr. Salvat cited these instances to show the need for harmony among the dealers and members of the E. V. A.

The chairman of the nominating committee, D. C. Arlington, presented the committee's choice of officers for the coming year, which passed unanimously as follows: Chairman, George B. Foster, Commonwealth Edison Co.; vice-chairman, William F. Bauer, Edison Storage Battery Co.; secretary-treasurer, Frank E. McCall. Executive committee: W. C. McNitt, chairman membership committee; D. M. Simpson, chairman papers and programs committee; Gail Reed, chairman garage committee; W. F. Bauer, chairman standards committee, and A. C. Brechtel, chairman nominating committee.

OPPOSE PRESENT POLICY

PEORIA, ILL., October 9—The Garage Owners Association of Illinois today went on record as opposed to the announcement of new cars in mid-summer. The time selected was November 15 to December 1. The resolution was introduced by J. C. Thorpe, chairman of the Motor Car Dealers Division. The recommendations are:

First. Selling season to conform more nearly with the calendar year, i. e., 1915 cars in 1915.

Second. Announcement of ensuing

year models November 15 to December 1.

Third. Deliveries of demonstrators to dealers to be completed by January 1.

Fourth. National shows to begin at Christmas season, or as at present.

Fifth. Local shows to follow National shows after an interval of four to six weeks.

Sixth. Factories to reach maximum production in May or June; and be it further

RESOLVED, That a copy of the resolution be respectfully submitted to the National Automobile Chamber of Commerce, with a plea for earnest consideration.

UNIFORM ANNOUNCEMENTS IMPOSSIBLE

NEW YORK, October 11—There will be no definite time for the announcement of new models by the various manufacturers. Although it was hoped that the committee which the National Automobile Chamber of Commerce has had working on the problem would report favorably, this has been found impossible. At the regular meeting of the Board of Directors of the Chamber, which was held October 6, the report of the committee was rendered. It stated that the committee had been unable to come to any definite agreement as to a uniform time in view of the numerous variable factors involved.

If new models were announced September 1, the committee reported, many factories which had cleaned up their year's business in May would be idle for three months; this would also affect the closed-car market; if January 1 were chosen the fall trade would be hurt, especially that in closed cars which is rapidly growing; if May 1 were adopted the entire selling season would be affected.

MONTREAL LEGAL ADVISOR

MONTREAL, October 11—The Board of Directors of the Montreal Automobile Trade Association has unanimously appointed Peter Bercovitch, K. C., the official legal advisor of the association.

CHICAGO MEMBER BULLETINS

CHICAGO, October 11—By way of increasing the business efficiency of its members, the Chicago Automobile Trade Association, through Secretary T. D. Beard, is sending out weekly bulletins. The one that went out the first of this week draws attention to the desirability of sending out mail immediately it is ready rather than permitting it to lie around the office until the last minute.

It is suggested that mail be sent out at least twice a day.

SERVICE MANAGERS MEET

INDIANAPOLIS, October 10—Members of the Indiana Automobile Service Managers Association at their regular meeting at the Hotel Severin, Saturday afternoon, voted to include in the organization the service managers of repair and distributing agencies in addition to those of manufacturers and accessory houses. They heard a series of addresses on the purposes of the organization and discussed the probability of an early National organization in which the sectional agencies similar to the Indiana organization will be incorporated.

The Indiana organization will meet regularly on the second Saturday of October, January and April, and each summer will have an outing. H. W. Drew, of the Nordyke & Marmon Co., president of the Service Managers Association, in his opening address outlined the purposes of the organization.

Four papers were read, each of which was a report on some phase of the National Automobile Chamber of Commerce Service Managers convention in Detroit last June. The papers were presented by O. W. Williams, of the Interstate Motor Co., Muncie, Ind.; George E. Drewe, of the Pathfinder Motor Car Mfg. Co., Indianapolis; J. O. Myers, of the National Motor Vehicle Co., and E. W. Cotton, of the McFarlan Motor Car Co., Connersville, Ind. The association will assist in a movement to standardize service policies.

VACANCIES ARE FILLED

GRAND RAPIDS, MICH., October 7—Several vacancies were filled by the Garage Owners Association of Michigan today. L. C. Rivers, Battle Creek, was made second vice-president, for two years. M. S. Gould, Adrian, was made third vice-president, for three years. B. W. Olin, Grand Rapids, was elected a director for three years. R. E. Sproat was added to the association's Purchasing Committee.

JOBBERS MEET OCTOBER 19

CHICAGO, October 6—Associate members and prospective associate members of the National Association of Automobile Accessory Jobbers will hold a conference for the consideration of matters of interest to them at the Hotel Muehlebach, Kansas Cit., at 2:30 p. m., Tuesday, October 19.

DES MOINES ELECTION DEC. 9

DES MOINES, October 11—The annual convention of the Iowa Automobile Dealers Association will be held December 9 in this city. Election of officers and appointment of committees will be effected at the meeting.

Wichita Holds Its Show With the Annual Fair

Salesrooms Are Turned Into Exhibition Spaces—100,000 Visitors Expected, Including Many Farmers—Fine Business Anticipated

WICHITA, KAN., October 7—In conjunction with the first International Wheat Show which is being held at the same time as the Wichita Fair, an automobile show is also being held. The show opened October 4 and will close ten days later. The attendance thus far has been very satisfactory and it is expected that more than 100,000 out-of-town visitors, especially farmers, will pass through the gates before the 14th. While all of the local dealers are not among the exhibitors, there is a representative number showing 1916 models. In the city every showroom has been cleaned and fixed up specially, some being very attractively decorated. Dealers say that the country people, the wealthy just as well as those of moderate means, are showing a decidedly greater interest when in a well-arranged and decorated showroom. Flowers and palms, real or imitation, seem to make the farmers especially feel more at home. The exhibitors are:

Midwest Motor Co. (Haynes), Century Garage Co. (Metz and Moon), Gibson Smythe Implement Co. (Oakland), Pullman Motor Co. (Chandler and Pullman), J. Arch Butts (Buick), Overland Motor Co. (Overland), Wichita Automobile Co. (Reo and Saxon), Jackson Motor Co. (Allen and Jackson), Heskett Motor Co. (Grant and Herff-Brooks), Western Auto Co. (Apperson), Arnold Auto Co. (Chalmers, Dodge and Woods), Kansas Motor Co. (Studebaker), Peru-Van Zandt Implement Co. (Empire and Westcott), Williams Motor Co. (King and Paige), Raffety & Rodda (Maxwell). The following accessory and other dealers have also spaces: Hockaday Auto Supply Co., the Vehicle Supply Co., Hagberg Rubber Co., Pathfinder Safety Pilot Co., Auto Supply & Tire Co., the Shattuck-George Iron Co.

Cars Shown at Puyallup Fair

PUYALLUP, WASH., October 9—The Western Washington Fair, held September 28 to October 3, proved an excellent advertising medium for Tacoma and Seattle dealers. While but few actual sales were made during the exhibition, considerable interest was manifested in the new models and the dealers were placed in touch with many of the small truck farmers who will purchase cars this year in greater numbers than ever before.

The following dealers exhibited:

Pierce Co. Auto Co., Puyallup, Overland; F. H. Barshar, Seattle, Saxon; Buick Motor Car Co., Tacoma, Buick and G. M. C. truck; Maire & Larkin, Tacoma, Maxwell; E. L. Cady, Tacoma, Jackson; Parker Motor Car, Seattle, Pullman and Marmon; Universal Motor Car, Tacoma, Ford; Cliffe & Ewing, Tacoma, Oakland; National Spark Gap Co., Seattle, Spark Gap attachment; Soleman Bros., Tacoma, Paige; Moon Motor Sales, Tacoma, Moon; American Auto Co., Tacoma, Reo and Reo truck; Standard Motor Car Co., Tacoma, Vim truck; Griffith Motor Car Co., Dodge; Metz Co., Metz.

NORTHAMPTON DEALERS

HOLD SHOW IN TENTS

NORTHAMPTON, MASS., October 11—In connection with the Three County Fair, an automobile show was held here October 6 and 7. There were three show tents, the first 50 x 100 feet, the second 57 x 70 and the third 50 x 50 feet, housing 52 booths, more than 50 cars being shown. Those who exhibited follow:

Northampton dealers—Frank S. Parsons (Reo), Ford Sales Co. (Ford), R. E. Davies (Paige-Detroit), the F. W. Roberts Garage (Overland and Stearns-Knight), G. H. Burnham (Jeffery), S. E. Hickman (Dodge, Oldsmobile and Oakland), Draper Garage (Maxwell), W. L. Chilson (Studebaker), W. D. Bowen (Buick), Northampton Garage (Cadillac), Parsons-Hudson Co. (Hudson), F. W. Bissell (Miller tires), H. P. Eastwood (Longford truck parts).

Springfield dealers—Harrington-Gifford Co. (Vim trucks), Springfield-Haynes Auto Co. (Haynes), A. V. Reopell (Chevrolet), Philbrook Motor Car Co. (Chandler and Scripps-Booth), Stoddard Motor Car Co. (Hupmobile and Pierce-Arrow), Norcross-Cameron Co. (Chalmers), Dimm-Semmons Co. (National).

Williamsburg dealers—Harry T. Drake (Jackson), R. F. Burke (Saxon).

Protect Standard Trademark

NEW YORK, October 4—The Standard Oil Co. has secured from Vice-Chancellor Stevens of New Jersey an injunction to restrain a number of Atlantic City dealers from applying the designation "Standard Oil" to gasoline not furnished by that company. Investigators are said to have obtained photographs of tank wagons which bore the names of concerns other than the Standard Oil Co. delivering gasoline at the stations complained of where Standard Oil signs were displayed.

Harry Grant Dies of Burns

NEW YORK, October 8—Harry F. Grant, twice winner of the Vanderbilt cup race, died last night in the Coney Island Hospital as the result of burns received September 28 when his Maxwell took fire at Sheepshead Bay Speedway.

Salesmanship Lessons With Every Truck Sold

Denby Truck Company Seeks to Develop Salesmanship Among Employees of Owners—\$3,000 Cash Prizes to Most Promising Students

DETROIT, October 11—Something entirely new in the way of assistance or help to the purchaser of motor trucks has been inaugurated by the Denby Motor Truck Co. It consists in giving free to the Denby truck purchaser a correspondence course of retail salesmanship in 36 lessons, extending over a period of one year.

The purpose of the Denby business-building and sales-efficiency service is to develop among the employees of every truck owner at least one thoroughly efficient salesman, able to take advantage of the wider trade possibilities that the truck opens up.

The correspondence course is divided into four quarterly periods of nine lessons each, which are sent to the students at the rate of three a month. With every lesson there are a number of questions which the student must answer and return to the Denby company, these answers having a great bearing upon the awards of the various cash prizes aggregating \$3,000 which the company has set aside to stimulate the interest of the students.

There will be one prize of \$1,000 which will be paid November 1, 1916, to the student who has shown the greatest progress, whether he has at that time finished the entire course or not. Four quarterly awards of \$200 each will be paid to the student who has shown the most progress during the quarter, while there will be four prizes of \$150 and four of \$75, one for each quarter, to be given respectively to the second and third best students.

In addition to the above prizes \$15 will be paid each month to the student ranking highest for that month and \$10 will be handed over to the salesmanship student ranking second. The result of the undertaking is awaited with interest.

Paige Dealers Are Celebrating

DETROIT, October 11—Dealers of the Paige-Detroit Motor Car Co. start a jubilee celebration today and will keep open house for an indefinite period. The occasion for the celebration is to commemorate the entry one year ago of the Paige company into the ranks of six-cylinder builders. The celebration is being widely advertised and dealers all over the country will stage special displays and keep salesrooms open in the evenings.

95 ACCESSORY MANUFACTURERS ALLOTTED SPACE

NEW YORK, October 8—The Motor & Accessory Manufacturers, through its show committee, today allotted exhibit spaces to 95 of its members for the New York and Chicago shows. The list is practically the same as heretofore, showing 87 exhibitors at New York and 83 at Chicago. There are 75 concerns that will exhibit at both shows, 12 will exhibit at New York only, and 8 at Chicago only.

The list this year contains practically no names of tire makers, a very few of the manufacturers of magnetos, axles, steering gears, and not so many manufacturers of starters as heretofore. The names represented include the accessory field throughout. This list will undoubtedly be supplemented when the allotment is made to manufacturers who are not members of the Motor & Accessory Manufacturers.

In addition to allotment of space four concerns were admitted to membership, these being: Brunner Mfg. Co., Utica, N. Y.; E. A. Laboratories, Inc., Brooklyn, N. Y.; General Bakelite Co., New York, and the Leece-Neville Co., Cleveland, O.

Exhibitors allotted space follow:

New York and Chicago

American Bronze Co.....Berwyn, Pa.
Apple Electric Co.....Dayton
Automobile Supply Mfg. Co..Brooklyn, N. Y.
Benford Mfg. Co.....Mt. Vernon, N. Y.
Blackledge Mfg. Co., John W.....Chicago
Brown, William H.....Cleveland
Brown-Lipe-Chapin Co.....Syracuse
Brown-Lipe Gear Co.....Syracuse
Brunner Mfg. Co.....Utica
Buda Co.....Harvey, Ill.
Bryne, Kingston & Co.....Kokomo, Ind.
Carr Co., F. S.....Boston
Champion Ignition Co.....Flint, Mich.
Cowles & Co., C.....New Haven
Cramp & Sons Ship & Engine Building Co., Wm.....Philadelphia
Detroit Lubricator Co.....Detroit
Dixon Crucible Co., Joseph.....Jersey City
Doehler Die Casting Co.....Brooklyn, N. Y.
Double Fabric Tire Co.....Auburn, Ind.
Dyneto Electric Co.....Syracuse
Eclipse Machine Co.....Elmira, N. Y.
Electric Storage Battery Co.....Philadelphia
Findelsen & Kropf Mfg. Co.....Chicago
Gabriel Mfg. Co.....Cleveland
Garford Mfg. Co.....Elyria
Garage Equipment Co.....Milwaukee
General Bakelite Co.....New York
Globe Machine & Stamping Co.....Cleveland
Gould Storage Battery Co.....New York
Gray & Davis, Inc.....Boston
Halladay Co., L. P.....Streator, Ill.
Harris Oil Co., A. W.....Providence
Hartford Suspension Co.....Jersey City
Hassler, Inc., Robert H.....Indianapolis
Hayes Mfg. Co.....Detroit
Heinze Electric Co.....Lowell, Mass.
Heinze Co., The John O.....Springfield
Herz & Co.....New York
Houk Mfg. Co.....Buffalo
Hydraulic Pressed Steel Co.....Cleveland
Kellogg Mfg. Co.....Rochester
Kent Mfg. Works, Atwater.....Philadelphia
Kokomo Electric Co.....Kokomo, Ind.
Lovell-McConnell Mfg. Co.....Newark, N. J.
Mosler & Co., A. R.....Mt. Vernon, N. Y.
Motometer Co., Inc.....New York
North East Electric Co.....Rochester
Oakes Co.....Indianapolis
Pantasote Co.....New York
Perfection Spring Co.....Cleveland
Pittsburgh Model Engine Co.....Pittsburgh
Rose Mfg. Co.....Philadelphia
Royal Equipment Co.....Bridgeport, Conn.
Sager Co., J. H.....Rochester
Schrader's Son, Inc., A.....Brooklyn, N. Y.
Schwarz Wheel Co.....Philadelphia
Shakespeare Co.....Kalamazoo, Mich.
Shaler Co., C. A.....Waupun, Wis.
Sparks-Withington Co.....Jackson, Mich.
Spicer Mfg. Co.....Plainfield, N. J.
Splittorf Electrical Co.....Newark, N. J.
Springfield Metal Body Co.....Springfield, Mass.
Standard Thermometer Co.....Boston
Stewart-Warner Speedometer Corp.....Chicago
Stromberg Motor Devices Co.....Chicago
United States Light & Heating Corp., Niagara Falls
Vacuum Oil Co.....Rochester
Van Sicklen Co.....Elgin, Ill.

Factory News of the Week

Veeder Mfg. Co.....Hartford, Conn.
Voorhees Rubber Mfg. Co.....Jersey City
Waltham Watch Co.....Waltham, Mass.
Westinghouse Electric & Mfg. Co., East Pittsburgh
Wheeler & Schebler.....Indianapolis
Willard Storage Battery Co.....Cleveland
Zenith Carburetor Co.....Detroit

New York Only

American Ever Ready Works.....New York
Bosch Magneto Co.....New York
Budd Mfg. Co., Edward G.....Philadelphia
E. A. Laboratories, Inc.....Brooklyn, N. Y.
English & Mersick Co., The, New Haven, Conn.
Hartford Machine Screw Co.....Hartford, Conn.
J. M. Shock Absorber Co., Inc.....Philadelphia
Janney-Steinmetz & Co.....Philadelphia
Light Mfg. & Foundry Co.....Pottstown, Pa.
Motor-Compressor Co.....New York
Nokolyd Signal Co.....New York
Ward Leonard Electric Co.....Bronxville, N. Y.

Chicago Only

Badger Brass Mfg. Co.....Kenosha, Wis.
Continental Motor Mfg. Co.....Detroit
Imperial Brass Mfg. Co.....Chicago
Remy Electric Co.....Anderson, Ind.
Sulzberger & Sons Co.....Chicago
Vesta Accumulator Co.....Chicago
Warner Gear Co.....Muncie, Ind.
Waukesha Motor Co.....Waukesha, Wis.

CHEVROLET ST. LOUIS PLANT

ST. LOUIS, October 9—The Chevrolet Motor Co. of St. Louis, with a capital stock of \$1,000,000, was organized here today and will begin within the next month the manufacture of new Chevrolet "Four-Ninety." Russel E. Gardner, millionaire buggy manufacturer, is president, and associated with him are W. C. Durant, A. B. C. Hardy, general manager of the Chevrolet Co. of Michigan; Russell E. Gardner, Jr., and Fred W. Gardner. The three-story plant of the Banner Buggy Co. will be converted into a factory. At the outset the parent company, in Flint, will ship parts to the local plant, which will assemble them. Later it is announced by officials of the local company, the St. Louis plant will manufacture the car in its entirety and will act as distributing center for the entire country.

PURITAN GETS HAVERS

DETROIT, October 11—The Puritan Machine Co. has purchased the Havers Motor Car Co., Port Huron. The Puritan company has bought the stock, blue prints, drawings, etc., and everything will be at once removed to Detroit.

Michelin Develops New Tread

NEW YORK, October 11—The Michelin universal tread tire is a new product of the Michelin Tire Co., Milltown, N. J., and is designed to resist the tendency to side-slip and skid. It has the flat tread of the Michelin racing tire, and on the tread is a raised pattern consisting of the letter M in a continuous series. Sizes and prices of the new tire follow:

32 x 4.....	\$22
33 x 4.....	22.50
34 x 4.....	23
36 x 4.....	24.75
35 x 4½.....	30
36 x 4½.....	30.75
37 x 4½.....	31.50
37 x 5.....	36.25

OVERLAND NOW SUPPLYING DETACHABLE TOPS

TOLEDO, October 11—The Willys-Overland Co. is now supplying detachable coupe and limousine tops to fit the model 83 chassis, the former listing at \$150 and the latter at \$200. Both completely enclose the car. These bodies can be easily attached in place of the usual folding top and are finished inside in dark gray cloth edged with a lighter gray. Window area is generous and there are silk draperies. Equipment includes a dome light.

TRACTORS FROM CALIFORNIA

LOS ANGELES, October 11—The Union Tool Co., Torrance, Cal., is placing on the market a three-wheeled agricultural tractor which is to sell for \$945. It is powered with a two-cylinder motor and weighs complete 4,000 pounds. The overall length is 13 feet 1 inch, the width 6 feet 7 inches, and the height 3 feet 11 inches. This is the first model and is marketed after three years of experimenting.

Jones To Build Jones Six

WICHITA, KAN., October 9—A charter incorporating and authorizing a capital stock of \$500,000 for the Jones Motor Car Co., to manufacture the Jones Six, has been granted. Of the entire capital stock \$200,000 is taken by J. J. Jones, founder of the company, which began less than a year ago to build cars in a local plant. Jones will turn over the plant which he owned privately to the new company. But two Wichita men are named as incorporators, they being Jones and J. W. O'Neill, former treasurer of the Kansas Casualty & Surety Co. It is expected a production of 60 cars a week will be possible within two months. W. A. King, for 14 years connected with several Detroit plants, will take charge of the shops as chief engineer and superintendent of production.

Elkhart Adds New Four at \$775

ELKHART, IND., October 11—For 1916 the Elkhart Carriage & Harness Mfg. Co. is building a single chassis model carrying two- and five-passenger bodies and selling at \$775 in either model, the price including electric lighting and starting and complete equipment. The motor has four block cylinders 3½ x 5 with detachable head, two-bearing crankshaft, thermo-syphon cooling system and ignition by Delco distributor; the Apple single-unit motor generator is installed with chain drive. Fuel is fed by a Stewart vacuum tank. The wheelbase is 114 inches, rear axle full floating, rear springs three-quarter elliptic and the propeller shaft runs in a torsion tube.

Mitchell Adds Detachable Tops

RACINE, October 11—Both five- and seven-passenger models of the Mitchell six, manufactured by the Mitchell-Lewis Motor Co., can now be obtained at an additional cost of \$165 with a detachable sedan top. The interior is lined with whip-cord and there is a large dome light in the ceiling.

Rayfield Motor Sees Trouble

CHRISMAN, ILL., October 11—A petition for involuntary bankruptcy against the Rayfield Motor Co. was filed in the United States district court at Danville this week. A. E. Schuckter, secretary and treasurer, filed the petition.

NATIONAL SHOW SPACES ARE ALLOTTED

NEW YORK, October 8—The meeting of the National Automobile Chamber of Commerce, Inc., for the drawing of exhibit spaces at the New York and Chicago shows proved one of the biggest from number point of view of the year. Heretofore the drawing has been in proportion to the total volume of passenger car and truck business, but a vote revealed that the majority favored including passenger car business only, as passenger cars only are on exhibition. The new ruling made considerable difference in the drawing and placed several concerns whose truck business is greater than the passenger car business some distance down on the list, whereas formerly they were up in the first ten.

The honor of selecting the first position for both shows fell to C. S. Jameson, of the Willys-Overland Co., the report showing this company the leader in the volume of business for the year, a position it has now held for the third season. Following Overland came Buick, Studebaker, Cadillac, Maxwell, Hudson, Reo, Dodge, Chalmers, Hupmobile, Packard, Paige, Franklin, Chandler and Saxon.

In all, 75 different car concerns secured space in New York, these not including probably six electric makes which will occupy a prominent space in one group on the second floor. Compared with the drawing a year ago, the number of makes is not quite so large, 95 makers securing space at that time. Practically all of the available exhibit spaces have been taken with practically three exceptions, this number of spaces remaining open on the third floor. There are a few new names in the show this year, including All-Steel, Sterling, Sun, and Trumbull, and others have dropped from the list, among them being Carter-car, Crawford, Briggs-Detroit, Krit, Lyons-Atlas, S. G. V., Speedwell, Herreshoff, McIntyre, Partin-Palmer, Sphinx, and Cresson-Morris.

There are 63 members of the association who were in the original drawing, their order of drawing being in proportion to the amount of business done. After these came five members who have recently joined the organization, and when these had secured space, non-members were given an opportunity, among those drawing being All-Steel, Davis, Empire, Enger, Herff-Brooks, Lewis, Metz, Owen, Remington, Standard, Sterling, Sun, and Trumbull.

Practically the same space arrangements will prevail in Grand Central Palace, New York, as has been used in the past. The main floor, second floor and a goodly portion of the third floor of the building will be used for car exhibits. Accessories will be on the third and fourth floors. In Chicago the show will be held in three buildings, the Coliseum, Coliseum Annex, and the First Regiment Armory, the cars having practically the same space as formerly.

NEW YORK—GRAND CENTRAL PALACE

Main Floor—Automobile Section		
Briscoe	Haynes	Palge
Buick	Jeffery	Pierce-Arrow
Cole	Kissel	Packard
Chalmers	King	Peral
Cadillac	Locomobile	Reo
Chandler	Mitchell	Saxon
Chevrolet	Marmon	Studebaker
Dodge	Maxwell	Velle
Franklin	Oakland	Winton
Hudson	Overland	White
Hupmobile	Oldsmobile	

Second Floor—Automobile Section

Apperson	Lozier	Pullman
Allen	Lexington	Patterson
Auburn	Mutual	Peerless
Case	Mercer	Pathfinder
Cunningham	Moline	Stearns
Fiat	Moon	Scripps-Booth
Interstate	McFarlan	Stutz
Jackson	National	Westcott
Kline	Premier	

Third Floor—Automobile and Accessory Section

Argo	Enger	Remington
Austin	Grant	Standard
All-Steel	Herff-Brooks	Sterling
Consolidated	Lewis	Sun
Davis	Metz	Trumbull
Empire	Owen	

CHICAGO-COLISEUM

Main Floor—Automobile Section

Allen	Haynes	Packard
Apperson	Hudson	Pierce-Arrow
Briscoe	Jeffery	Paige-Detroit
Buick	King	Regal
Cole	Kissel	Reo
Chalmers	Locomobile	Saxon
Chandler	Moon	Stearns
Cadillac	Maxwell	Studebaker
Case	Mitchell	Velle
Crow	Marmon	White
Chevrolet	Oldsmobile	Winton
Franklin	Oakland	
Hupmobile	Overland	

Coliseum Annex

Auburn	Interstate	Pullman
Crow	Mercer	Peerless
Detroit	Mutual	Stutz
Dodge	National	

First Regiment Armory—Main Floor

Austin	Grant	McFarlan
Argo	Glide	Paterson
Consolidated	Jackson	Pathfinder
Cunningham	Lexington	Premier
Davis	Lozier	Scripps-Booth
Empire	Lewis	Westcott
Elkhart	Moline	
Fiat	Metz	

Coliseum Basement

All-Steel	Farmack	Remington
Dort	Herff-Brooks	Sun
Elgin	Monitor	Standard
Enger	Owen	

Motor Car Securities Quotations

No quotations for the corresponding date in 1914 are available because of the closing of the Stock Exchange due to the foreign war situation.

		October 9, 1915	
		Bid	Asked
Ajax-Grieb Rubber Co., com.	300	..	..
Ajax-Grieb Rubber Co., pfd.	101	..	..
Chalmers Motor Co., com.	151	156	156
Chalmers Motor Co., pfd.	98½	101	101
Chevrolet Motor Co.	104	108	108
Firestone Tire & R. Co., com.	575	..	..
Firestone Tire & R. Co., pfd.	112	..	..
General Motors Co., com.	341	343	343
General Motors Co., pfd.	111	113	113
B. F. Goodrich Co., com.	73½	75½	75½
B. F. Goodrich Co., pfd.	108½	109½	109½
Goodyear Tire & R. Co., com.	338	345	345
Goodyear Tire & R. Co., pfd.	108½	109½	109½
International Motor Co., com.	27½	29	29
International Motor Co., pfd.	55	60	60
Kelly-Spgfld Tire Co., com.	215	230	230
Kelly-Spgfld Tire Co., 1st pfd.	90	92	92
Kelly-Spgfld Tire Co., 2nd pfd.	225	235	235
Maxwell Motor Co., com.	55½	57	57
Maxwell Motor Co., 1st pfd.	93	95	95
Maxwell Motor Co., 2nd pfd.	46	48	48
Miller Rubber Co., com.	198	202	202
Miller Rubber Co., pfd.	109	110	110
Packard Motor Car Co., com.	139	143	143
Packard Motor Car Co., pfd.	101	..	..
Paige-Detroit M. C. Co., com.	..	445	445
Peerless M. C. Co., com.	122	130	130
Peerless M. C. Co., pfd.	92	94	94
Portage Rubber Co., com.	54	56	56
Portage Rubber Co., pfd.	92	94	94
Regal Motor Co., pfd.	..	21	21
*Reo Motor Truck Co.	19½	21½	21½
*Reo Motor Car Co.	38½	40	40
Stewart-Warner Speed. Corp., c. 73	74	74	74
Stewart-Warner Speed. Corp., p. 106	..	..	..
Studebaker Corp., com.	142	143½	143½
Studebaker Corp., pfd.	109	110	110
Swinehart Tire & R. Co.	87	90	90
United States R. Co., com.	53	55	55
United States R. Co., 1st pfd.	107	108	108
White Co., pfd.	110	..	..
Willys-Overland Co., com.	231	233	233
Willys-Overland Co., pfd.	107½	108½	108½

*Par value \$10; all others \$100 par value.

Coming Events

*Indicates sanction by A. A. A.

Oct. 16.....	Chicago — Speedway racemeet, Speedway Park Association.*
Oct. 17.....	Twin City Speedway Match Race.
Oct. 18-19.....	Cleveland, O.; Hotel Statler; Sixth Annual Convention, Electric Vehicle Assn. of America.
Oct. 20-22.....	Excelsior Springs, Mo., quarterly meeting National Assn. of Automobile Accessory Jobbers.
Oct. 25, 26, 27....	Columbus, O. — State convention; Columbus Garage Owners' Association.
Nov. 18.....	Arizona 150-mile Grand Prix.
Nov. 20.....	Phoenix, Ariz., 150-mile track meet.
Nov. 29-Dec. 4....	Country-wide Electric Prosperity Week.
Dec. 9.....	Des Moines, Ia. Annual convention; Iowa Retail Dealers Assn.
May 13.....	New York City, Sheepshead Bay Speedway Race.
May 20.....	Indianapolis, Ind., Track Race-meet.
June 17.....	Chicago, Ill., Track Racemeet.

THE SHOW CIRCUIT

Oct. 4-14.....	Wichita, Kan., show, Wichita Auto Dealers' Assn.
Oct. 6-16.....	New York City; Ninth Annual Electrical Exposition and Motor Show at Grand Central Palace.

Feb. 14-19.....	Des Moines, Ia. Seventh Annual Show; Des Moines Automobile Dealers Assn. Coliseum.
Oct. 16-23.....	Pittsburgh, Pa., Eleventh annual show, Motor Square Garden, Automobile Dealers Assn. of Pittsburgh.
Oct. 17-18.....	San Diego, Cal., Show at Exposition.
Oct. 17-31.....	Dallas, Tex.; Show, State Fair.
Oct. 18-25.....	Troy, N. Y., show, Armory; Troy Automobile Dealers' Assn.
Nov. 1-3.....	Pasadena, Cal.; show; Hotel Green. Walter Hempel.
Nov. 12-20.....	Providence, R. I., Show, Automobile Dealers Assn.; State Armory.
Nov. 22-27.....	Binghamton, N. Y.; Show, Binghamton Automobile Dealers Assn.; State Armory.
Dec. 31-Jan. 8....	New York, N. Y., Sixteenth Annual National Automobile Show; National Automobile Chamber of Commerce; Grand Central Palace.
Jan. 8-15.....	Cleveland, O., Fifteenth Annual show; Wigmore Coliseum, Cleveland Automobile Show Co.
Jan. 8-15.....	Philadelphia, Pa., show, Philadelphia Automobile Trade Assn.
January 22-29....	Chicago, Ill.—Show; National Automobile Chamber of Commerce; Coliseum and First Regiment Armory.
Jan. 24-29.....	Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.

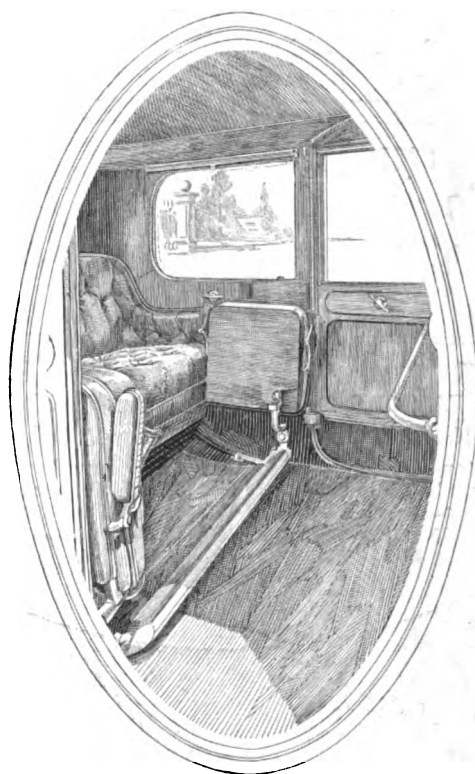
MOTOR WORLD

for
JOBBERs, DEALERS, AND GARAGEMEN

Volume XLV
No. 3

New York, October 20, 1915

Ten cents a copy
Two dollars a year



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KNIGHT

MODEL 84

\$1750

F.O.B. TOLEDO

SLEEVE VALVE MOTOR



An Unusual Car—An Unusual Price

The almost absolute silence of its powerful sliding sleeve valve motor is in accord with the quiet refinement of its appointments.

It is fitting that this luxurious car has the type of motor which the leading foreign producers use in the cars they build for the Royal Families and the Nobility of Europe.

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These things give permanence to the owner's investment and justify the larger outlay represented in the purchase of a limousine.

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\$1500
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Also Manufacturers of the Famous
Overland Automobiles

Touring Car
\$1095
f. o. b. Toledo



MOTOR WORLD

Vol. XLV

New York, U. S. A., Wednesday, October 20, 1915

No. 3

A Statement of Policy That Will Avoid Conflict of Interests

MOTOR WORLD has been criticised by some accessory manufacturers because the names of the products of these concerns were not included in certain lists of stocks of accessories carried by some garagemen, dealers and jobbers who furnished Motor World with an inventory of their accessory stock or with a suggested ideal initial stock.

These lists of accessories that a garageman could or does carry, were part of Motor World's Campaign for Greater Profits, Motor World's Campaign to have garages and dealers carry a stock of accessories and supplies, because of the money that can be made from them; and because the dealer and the garageman are the logical persons to sell accessories.

In publishing these lists Motor World had no thought of advertising any particular make of spark plug, tire, carbureter, lamp, magneto or horn, etc. The lists were suggestions of the scope of stock necessary for a garageman or dealer to carry and NOT INSTRUCTIONS OR RECOMMENDATIONS AS TO WHAT PARTICULAR MAKE OF ACCESSORIES HE SHOULD SELL.

One large jobber, seeing how necessary it was for the dealer and garageman to stock limitedly with a line of accessories, took Motor World's tip of such a list of accessories and got one up, inserting all of

the goods of his line that would find a place in such a stock.

Thanks, Motor World is pleased with this compliment. It is what the list was intended for—a suggestion, not a blanket order for accessories and supplies. Motor World hopes more dealers will follow this policy so that every garageman and every dealer throughout the country will know what is advisable for him to carry as a stock of supplies.

In the future, dealers, garagemen and jobbers sending lists of stocks of accessories to Motor World will confer a favor if all trade names of accessories are omitted.

Motor World's Campaign for Greater Profits, through a wider sale of accessories in the dealer's and garageman's field, is too broad to be hampered by any misinterpretations, and too important to become a tool of any manufacturer who, under the misnomer of publicity, hopes by one means or another to get his goods included in such lists.

This national campaign will be continued. Already it has shown thousands of garagemen the possibilities of increased trade arising from a clean business place; and the possibilities of adding to their annual revenues by stocking with live accessories and selling them in a simple, honest, businesslike manner.

Showcase Boosted Sales \$421 a Month

Car Dealer Had Been Stocking Accessories— But Now It SELLS Them



This is Frederick E. Murphy, Minneapolis, whose company, up to August, STOCKED accessories. Then he put in a salesroom showcase and has found his car salesmen have no trouble at all in SELLING accessories to purchasers of new cars

IN AUGUST, the Frederick E. Murphy Automobile Co., Minneapolis, had a big accessory stock and had had it on hand a long time—but it didn't move.

In September the sales totaled \$421. The company's profit was about \$100.

In August the accessories were upstairs in the stockroom.

Today they are in a showcase on the salesroom floor.

In August no one knew there were any accessories in the place; even the salesmen paid no attention to them.

Today every one about the place—and the public, too—knows the company handles accessories, and the salesmen are requested to sell them.

Still These Greater Profits Come

In the window are fixtures displaying goods, and whatever the cause, the result is certain. The company is selling accessories, and making money at it. Compared with the condition previously, the accessory money is all velvet, for there are no more salesmen than before, there is no added expense—except for the showcase—and still these Greater Profits come. They come so well that another show case is to be installed in order that they may come still faster.

This gain in accessory sales, it should be noted, comes at a time when the sales of accessories might be expected to become slack. When the touring and car selling season opens up again in the spring the volume is expected to surpass by far the sales of this fall.

When Motor World opened its pages some time ago for a discussion of the selling of accessories by car dealers, there were some who said it could not and should not be done. Perhaps not,

but the Frederick E. Murphy company is doing it.

There were those who said accessories should not be sold from the same salesroom floor as cars. They would detract from the sale of the cars. But in the Murphy salesrooms the showcase is in the middle of the floor, and it seems to add an element of completeness to the establishment. It seems to say that here one may buy his car and everything that goes with it. But whatever it says it is a fact that those who buy cars here buy a great deal of "everything that goes with it."

Is Found Money for the Dealer

It is "found" money for the dealer, and the owner is handily supplied with those things he would buy elsewhere if left to depart without them.

Putting the showcase on the salesroom floor is not all that has sold supplies. Salesmanship has done much of it. And the situation serves to emphasize that old adage about the "old dog and new tricks," for it is a brand new salesman who has sold most of the accessories.

The men who have sold cars for years and who have paid little attention to the sale of accessories find it a "new trick" to sell accessories to the man who has just bought a car. Most of the sales are made by a salesman who never had any experience in the motor car trade until last summer. Entering it with an untrammelled mind, he has connected cars and accessories and sells both. He even sells good bills of accessories to men who have been sold cars by other salesmen. He is coming to be termed the company's accessory salesman.

This salesman has followed Motor World's Campaign for Greater Profits.

He is using Motor World to break his way into a business that until two months ago was unknown to him. In his study of the paper he studied accessory merchandising along with other things, and his sales education thus far covers equally cars and their accessories.

How They Are Sold

It is a new field for the old motor car salesman. He is not used to it. He thinks in terms of cars and big commissions and cannot bring himself to think in terms of accessories and their smaller commissions. But these smaller commissions add up mightily.

The accessories are neatly, conveniently and cleanly displayed, and this is how they are sold:

A man buys a car. It is equipped with a great many things. He COULD drive it away and get along nicely, but some time or other he would buy added accessories. And there are some things he will find almost necessary—especially so, provided he is shown why they are necessary.

One thing is a glare-stopper, an amber-colored disk that fastens to the windshield. Not long ago a man was picked up in the northwest with a broken neck. He lived a week and in delirium he murmured: "Jump, Bobby! I may miss the bridge! I'm blinded!" The driver did "miss the bridge" in the glare of an approaching car, and "Bobby" was the only one to tell the story. The new car owner "really needs a glare-stopper." It also may save his new and costly investment being left a wreck in a ditch.

He Needs 101 Things

If he comes to a sign by the roadside at night he doesn't want to get out and wade to it in the mud, light a match and read it. He needs a spot-light—and generally buys one.

Cold days are coming. What about a robe? A nice mackinaw robe? "We have samples here of some warm and pretty materials and—" Well, who ever drove in the winter without a robe? Especially in Minnesota.

"The car does look fine! Doesn't it? And it can be kept looking fine, too, with a little care. Oh yes, a little body polish and cleaner is a wonderful thing. It makes a car look several hundred dollars better." Sounds reasonable, doesn't it?

Patches? Everyone needs them! Emergency flash lamps? Great things!

The accessory showcase is in plain view from the door; customers cannot miss it. Close by the door is the bumper stand and the coat rack. The shorter arrow shows location of the tire rack



This is the showcase that has boosted the Murphy company's accessory sales \$421 in one month. The goods are tastefully and well displayed. Behind the case is Murphy's sales and office organization

This tire rack stands not far from the door and like the showcase it has a mission and fulfills it

Even use them in the home at night when the baby cries and the house light can't be turned on full glare.

Oh, what's very fine is a hand lamp and leader that can be hooked up to the lighting system.

Slip covers save the car. Rubber pedal pads assure safety. Goggles are essential to comfort—and comfort is the prime requisite in driving. The buyer and his wife both need goggles.

Air gauges are real tire savers. Hydrometers and hydrometer syringes avoid trouble. A duster that won't scratch is a scarce article, but "we have one here that—"

Results Are Gratifying

There is no end to the story. There are many needs, and the man who has just paid \$1,200 or \$1,300 for a car generally won't balk at adding \$25 or \$50 more to "fix 'er up."

Sometimes after a man has bought a car he has to wait a while for it to be gotten ready for the road. Sometimes he is openly delayed by the salesman, and in this interval it is the easiest thing in the world to lead him up to the show case and get him interested.

It is simple—so simple that one won-

ders why it isn't done more often. And the results are gratifying.

The Murphy salesroom, on a corner, is 82 feet front by 75 feet deep and 33 feet high, one of the most beautiful in the trade. Cars flank both sides of the Hennepin avenue entrance—the only entrance—and at the end of the runner on the floor is the show case, a handy barrier between the big, open floor and the desks at the rear.

What's In the Case

The show case has three shelves and on top of it lies a warm mackinaw robe. On the top shelf are:

Mackinaw samples, special spark plugs, goggles, cementless patches, tire gauges, pedal pads, screwdrivers, pocket electric lamps, spot lights, pliers, hydrometers and hydrometer syringes, lamp bulbs, spark plugs, more plugs, a socket wrench and more plugs.

Middle shelf—Adjustable wrenches, horns, emergency lamp and leader, body dusters, glare stoppers, chamois, an electric horn, can of body cleaning compound, tube case.

Bottom shelf—Engine-driven pumps, tube, hammer, grease gun, hand air pump, headlight, dry cells, funnel, metal polish,

radiator compound, metal polish (smaller can), body cleaner, hydrometer syringe, washing sponge, tire chains, inner shoe.

At the right of the door stands a bumper stand with an assortment of bumpers; hanging to it also are tire chains. Beside this is a rack with rubber coats and warm robes.

In the other corner, also in the window, is a rack for tires, with the upper section filled with cans of oil and with glare-stoppers attached to the extreme top. There is a glare stopper on the windshield of one of the cars on the floor.

Plenty More in Stock Room

This line of goods does not embrace all that is in stock. There are many other things that might be included, but these include what might be termed "motorists' essentials." And they are a line of goods easily displayed and made attractive.

The point is not that the Murphy company has gone into a new venture. It has merely brought a dormant venture back to life and has started an extra stream of welcome profits trickling into the till.

Cooperation Between Central Station and Vehicle Maker Salvation of Electric Trade

Electric Vehicle Association Dwells on Improvement That Has Been Made and Urges That It Be Continued—
Need for Service System

CLEVELAND, October 18 — Two hundred electrical vehicle manufacturers, central station men and others representing allied branches of the electric vehicle industry, are here today at the opening of the sixth annual convention of the Electric Vehicle Association of America, at which the keynote was the marked improvement in cooperation between the vehicle makers and the central station people with a view to a more general use of electrics in all kinds of service.

Must Get Together

The electric interests have all come to realize that they are not getting the recognition which the performance, economy and general utility of electric cars deserve, and the convention evidently intends to get at the root of the trouble and to rectify it at once.

Nearly every speaker mentioned this cooperation in one way or another and they were practically unanimous in their belief that this is the salvation of the business. Station men and makers must get together for their mutual benefit. It is still largely a question as to how far one faction must go in its assistance of the other.

Undoubtedly the most interest today centered around the talk by George H. Kelly, Baker, R. & L. Co., on the problems the electric vehicle industry is facing and how they may be met, and also the report by Chairman Walter H. Johnson, of the Central Station Cooperation committee, the remarks of both men being allied in that they struck the same sympathetic note of cooperation.

Line Up Central Stations

Johnson's remarks were recommended for circulation throughout the country because they represent so well the views of the gathering. It was the sentiment that central stations should maintain electric vehicle departments and use electrics wherever possible, although it is inadvisable to try to make them use such cars when other types of vehicles obviously pay better. It was brought out that the only way to make the cooperative idea pay is to reach the central stations which have not already been brought into line.

Kelly said that the past year has

shown marked development in the co-operation between the different branches of the industry, but the two great problems are the creating of electric car demand and how to care for the new cars after sold. He says that the electric car answers the service demands of 99 per cent of the people in cities, as it has greater speed than any city will permit and its mileage possibilities are more than anyone wants. These are the two big features on which the public must be educated and convinced. The tremendous problem, he said, is how to show the public what the electric is actually capable of. First the electric vehicle people must sell themselves on the merits of the cars and then the rest will follow.

The electric taxicab created a great deal of interest, Mr. Reilly predicting that in 5 years it will have completely displaced the gasoline type. I. S. Scrimger, Detroit Taxicab and Transfer Co.,

Battery Service System by Garages Is Needed

Would Permit 100% Increase in Sales—More Sales Effort on Prospect Should Be Made

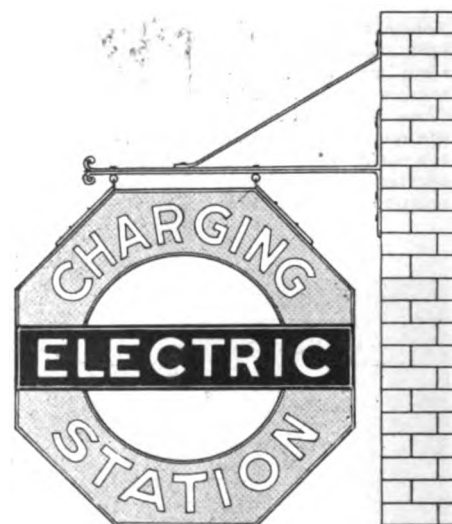
The Garage and Rates Committee reported that while rapid development of the electric vehicle business had been hindered by somewhat unsettled conditions there are other causes which have interfered with progress, not the least of these being inadequate, inefficient and inconvenient garage service. It also reports that at a meeting held in Chicago, at which there were representatives of all the commercial vehicle manufacturers in the city, the unanimous opinion was that:

Truck Statistics

1. A battery service system would make it possible to increase sales 100 per cent in the districts where a suitable service was available.

2. If the battery service could be rendered through independent reliable garages it would be preferable.

3. That more sales effort must be spent on prospects. At present in this district there are 30 gas truck salesmen to one electric representative.



Proposed new emblem of the Electric Vehicle Association of America

which is the pioneer in this field, gave some information regarding the successful operation of such vehicles and the interest shown may be taken as most significant of the development that is expected to come in the near future.

There are two cars here after long cross-country runs, demonstrating that they can be run long distances. The Ward electric successfully made the 740-mile run from New York without mishap, and a Detroit taxicab was driven from Detroit. Several interesting topics were scheduled for tomorrow's sessions and a banquet in the evening closes the convention.

The report gives the following data on the number of electrics in use in Chicago on August 1, 1915:

Chicago Has 910 Trucks

According to information available there were 910 trucks in operation, and of this number one company operated 229, or 25.1 per cent. It is also brought out that more than half the trucks operating in Chicago are owned by four companies, while eight companies operate more than 73 per cent of the total number and there are only 62 users having a single truck.

The report recommends that to expediate the establishment of additional garages which seem to be necessary, either battery manufacturers or central stations put batteries in the garages on a suitable deferred payment plan. It is stated that it would be logical to look to the battery manufacturers first, but if these did not look with favor on the idea it would be necessary to turn to the central stations.

Wide Rate Variation in New England Territory

Charge for Current Varies from 3c to
15c—Regular and Transient
Rates the Same

NOT the least interesting of the reports from the association's sections is that from the New England Section, which gives considerable information concerning the number of charging stations maintained in New England and the rates that are charged for current.

In order to gather data the Section sent out to 170 central stations in New England a letter containing the following questions:

1. What are your rates for electric vehicle charging for public and private garages?
2. What rates do public garages charge their customers, both transient and regular?
3. Do you maintain a public garage or charging station? If so, what are the rates charged for various classes of service?

To these questions 104 replies were received and these may be classified as follows:

State	No information on any question	Company has no charging station	No charging in public garages	No special rates
Maine	8	10	10	7
New Hampshire ..	6	12	12	11
Vermont	2	6	5	3
Massachusetts ..	11	21	27	12
Rhode Island	5	3	1	1
Connecticut	3	12	14	4
	30	66	71	38

The following information was received in these answers:

QUESTION 1—Rates for Electric Vehicle Charging Both Public and Private Garages.

Private garages

Cents	
3 straight	3
(one has \$1 minimum.)	
3½ (one has \$1 minimum).....	1
4 (one has \$1 minimum).....	4
4½ (one has \$1 minimum).....	2
4½ slide	1
5 straight	7
5 slide	3
6 straight	4
6 slide	1
6½ slide	1
7 straight	1
7½ straight	1
8 slide	1
10 straight	2
10 slide	6
12 slide	1
12½ slide	1
8 peak.....4 off peak.....	1
12 peak.....7 off peak.....	3
15 slide to 4.....	1

Public garages.

Public and private rates are the same except in three instances where the public rates are:

Cents	
6 straight	1
6 slide	1
3 straight	1

QUESTION 2—What Rates Do Public Garages Charge Their Customers, Both Transient and Regular?

Nearly all companies give the impression that the public garages charge transient and regular customers the same rate.

Cents	
50 flat	1
75 flat	1
\$1 flat	1
5 flat	4
6 flat	1
8 flat	3
10 flat	7
20 flat	1
2 per amp. hr.....	1
90 to \$1.80 min.....	1

In two cases public garages charge respectively \$1 for transient and 50 cents for regular, and \$1.50 for transient, and \$35 per month for regular service.

QUESTION 3—Do You Maintain a Public Garage or Charging Station? If So, What Are the Rates Charged For Various Classes of Service?

Cents	
3½ flat	1
4 flat	2
5 flat	5
(50 cents minimum)	
(one has 75 cents minimum)	
(one has 50 cents minimum)	
6 flat	5
7 flat	3
8 flat	1
10 slide	1
50 — \$1.50	1
\$1 min.	1
5 peak to 3 cents off-peak.....	2
\$8 month	1

The Electric Taxicab Is Popular in Detroit

After a Trial Most Persons Prefer the
Electric—Operating Cost 20c
per Mile

ABOUT 2 years ago, said I. S. Scrimger in his paper, "The Electric Taxicab," we decided to build one electric cab as an experiment. Our first car was placed in service at the Hotel Pontchartrain at 2 o'clock in the afternoon, June 25, 1915, and up to the present time has been in continuous service about a year and three months.

It was only a short time when we commenced to receive letters of approval, and the cab met with such a signal success that we decided to build eleven more. These

additional eleven electric cabs went into service last December and January, and have, therefore been in service about eight months. We are just completing fifteen additional electric cabs, which will be completed between now and the 15th of October, and we have twenty more under way, which will be in service about the first of January. This will give up an equipment of 47 electric cabs.

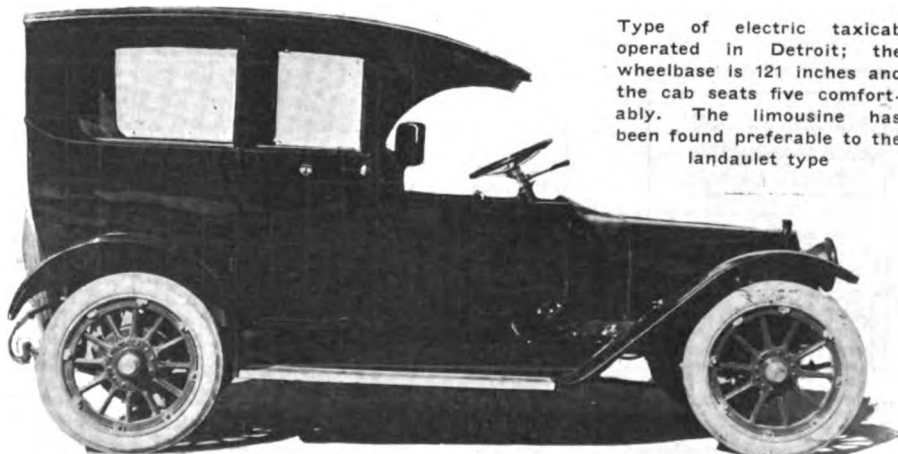
The public in Detroit have taken very kindly to our electric equipment; so much so that we have had people wait from a half hour to three-quarters of an hour for the return of an electric cab when we had gas cabs standing, which they might have used. We found, when trying to get an expression from the public before installing our electric cabs, that the public were not very favorably disposed toward the electric service.

Most of the persons consulted seemed to have only a very meager idea as to how well an electric cab could be made to perform. I heard one gentleman say that he thought electric cars were designed and built for old ladies, and had he known our car was an electric before getting into it would have declined to use the electric service. This same gentleman said we had not only converted him to the electric, but he was going to buy one for his wife if he could obtain a car that would give as satisfactory results as the one we were building.

All of our twelve cabs now in service are being operated 24 hours a day with two drivers; each man working 12 hours. To enable us to operate our electric cabs 24 hours a day, we have had installed at the edge of the sidewalk at the hotels Statler, Tuller, Griswold House and Pontchartrain charging boxes, and our cabs, while standing idle, are on charge.

Our cab has a 121-inch wheelbase, and the interior of the cab body proper has a space about 68 inches long and about 50 inches wide, which you will see enables us to carry from four to five persons very comfortably. Our experience taught us that the limousine type of body was preferable to the landaulet type, and could be operated with less expense. We are using Silvertown Goodrich pneumatic tires, and have already made a wonderful mileage showing with these tires.

Our operating cost per mile up to the present time has not exceeded 20 cents. This cost includes drivers' wages, overhead, tire expense, garage expense, depreciation and every expense, in fact, which is incidental to the operation of the taxicab business. The only point on which we are uncertain is the life of the car. We feel that the car has been so well made that we may be able to depreciate this car over a period of 10 years. This, of course, is a problem which time alone will tell whether or not we are correct.



Type of electric taxicab operated in Detroit; the wheelbase is 121 inches and the cab seats five comfortably. The limousine has been found preferable to the landaulet type

Usefulness of Electric Depends on the Garage

If Facilities Are Proper, Electric Can Be Used for Any Service—Private Garages a Failure

IN addition to being a place in which the electric vehicle is housed, washed and charged, an electric garage that performs its functions is a place from which the vehicle can be operated economically, said R. Macrae in his paper, "The Function of the Electric Garage."

It relieves the vehicle manufacturers of the expense of maintaining a repairshop in connection with every selling agency and the vehicle user of the expense and annoyance of having the vehicle tied up while a bolt or a small piece of casting is being obtained from a distant part of the country.

It is only necessary to inquire about the garaging facilities and if the answers to these inquiries are satisfactory we need not hesitate to recommend electric for any kind of street traffic.

Garage Shortcomings

It must be admitted, however, that garaging arrangements are at present generally unsatisfactory. The various schemes of battery maintenance and battery service that we hear spoken about and the claim that electric vehicles will never be entirely successful until some such maintenance systems are established, go to show that at the present time batteries are not being properly maintained. In other words, that the garages are not performing their functions properly. The battery, however, is not the only part of the electric vehicle that has to be maintained, and a battery maintenance system alone will not enable the owner of an electric vehicle to operate it to the best advantage.

The shortcomings of the garages are almost entirely due to a general misconception of what the functions of the garage should be and to the fact that those who are interested the most in the development of the electric vehicle industry have not fully realized that public garages are necessary in order that the electric vehicle may become generally available.

There are two reasons why the small private garage cannot perform the functions of a garage satisfactorily. The first is, that it cannot afford to maintain an adequate equipment, and the second is the comparatively high rates per kilowatt-hour that the small garage has to pay for electric power, whether the electricity is generated on the premises or is obtained from the Central Station Company.

In order to start these small garages, however, it has been customary in some cases to make claims for the electric vehicle which may sound plausible to those who know nothing about the subject but are merely absurd to anyone who is familiar with motors, batteries and electric meters. We read, for instance, that "No skilled labor is necessary to operate an electric vehicle, that in charging all that need be done is to close a switch, and that automatic apparatus will do the rest, that the cost of operating electric vehicles is independent of the mileage, that the bill for electric power will not be over \$7 per month, and so on." Such claims create the impression that it is not necessary for a man to know anything about electricity in order to qualify as manager of an electric garage, and the result is that less intelligence or less common sense is exercised in the operation of electric vehicles than there is in the operation of any other class of apparatus for which the central station supplies power.

In more than nine cases out of ten, when the owner of a private garage who makes a complaint about the size of his power bill is asked how much electricity is used each night for charging, he will answer by asking, "Do you mean what button I start it on?" or some such question, although an electric meter stares him in the face every time he enters his so-called garage.

When the public is made to understand that an electric vehicle in order to be successful must be operated under the supervision of someone who knows what an electric vehicle is, we will no longer see the owner of one of these cars taking it to a livery stable or a gasoline garage under the impression that it will there receive the right kind of attention. From the outside a gasoline garage may look very much like an electric garage, but it would be as reasonable to expect an electric vehicle to be properly cared for in a tannery as in a gasoline garage.

How Power Is Used

The second factor which makes it difficult for a small garage to perform the functions of a garage properly, namely, the higher cost of electric power in small garages, cannot be left out of consideration when electric vehicles are to be operated in competition with vehicles using other kinds of power.

It is not necessary here to point out the various reasons why the small garage is obliged to sell electric power at a higher rate per kilowatt-hour than the large garage.

It is evident that in order to get the best that is in the electric vehicles out of them we must operate them from large and properly equipped garages instead of trying to maintain a separate garage for each vehicle.

Fig. 1 shows how power is now used in several of our garages, giving the total con-

sumption and load factor of each, the garages being numbered in the order of their load factor.

Fig. 2 shows the daily load curve of a garage having a load factor of 11 per cent, which is below the average.

Fig. 3 is that of a garage with a load factor of 46 per cent, which is considerably above the average.

From these curves it will be seen that there is ample room for improvement in the operation of our garages in regard to the economical use of electric power, and that under certain garaging conditions it would be impossible for any electric vehicle to make a good showing. How long before we will have better garaging arrangements must depend upon the amount of cooperation that the different interests involved bring to bear on the question.

Battery Exchange System Increases Car Mileage

Hartford Electric Light Co. Finds Cars Running Nearly 20 Per Cent Further a Month

THE customer purchases trucks without batteries under the Battery Service System, as developed by the Hartford Electric Light Co., said Willis M. Thayer in his paper, "Data on the Hartford Electric Light Co.'s Experience with the Battery Exchange System." The company buys the batteries, charges and installs them in the customers' trucks. The equipment required by the company consists of batteries, the means for charging the batteries, and the apparatus for placing the batteries in the customers' trucks.

The odometers on the trucks are also a part of the company equipment, with the cradles for the extra batteries. The "service" may be divided into two parts: the charging of batteries in cars at night and the charging of batteries out of cars.

All batteries used on the "service" are Edison batteries of the standard size, recommended by the G. V. Co. for the different sizes of trucks and all the trucks on the "service" are G. V.'s, equipped with Universal cradles.

Operating Data

The introduction of "battery service" has tended to increase the mileage covered. The Boston Branch Grocery has a 1,000-pound car in use for 56 months, and has covered 46,760 miles, an average of 835 miles per month. The mileage of this car for July, 1915, was 1,012. C. N. Dodge has had a 750-pound car in service 46 months, and has covered 42,796 miles, an average of 930 miles per month. The miles covered by this car

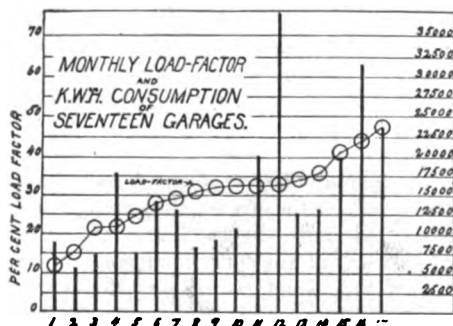


Fig. 1—Typical consumption chart for 17 electric garages, showing monthly load factor

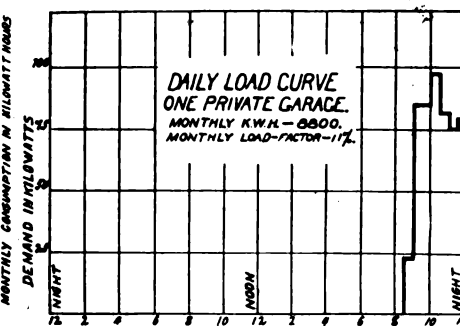


Fig. 2—Consumption chart for a garage with an 11 per cent load factor; below average

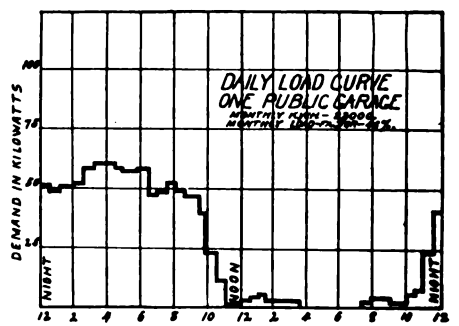


Fig. 3—Consumption chart for a public garage with a load factor of 46 per cent; above average

for July, 1915, were 1,293. The Eagle Dye Works Co. has operated a worm drive car for 9 months, and has covered 10,782 miles, an average of 1,198 miles per month. The mileage of this car for July, 1915, was 1,313. One of Gaffey's Express 1-ton cars has been in service 32 months and has covered 35,032 miles, an average of 1,095 miles per month. The mileage of this car for July, 1915, was 1,251. The City Coal Co. has operated a 2-ton truck for 8 months and has covered 7,998 miles, an average of 1,000 miles per month. This truck covered 1,110 miles in July. One of the first 1-ton cars received by the Hartford Electric Light Co. has been in service 62 months and has covered 50,844 miles, an average of 820 miles per month. The mileage in July, 1915, was 1,031.

The record of cars and batteries for June, 1915, stands:

No. of cars	Size	Batteries	Ratio
11	750-lb.	17	1.54
22	1,000-lb.	34	1.54
28	1-ton	33	1.18
3	2-ton	5	1.67
Total, 64		89	1.4

During the month of December, 1914, cars on the road represented 1,432 car days, 1,284 exchanges of batteries were made, or 90 per cent of the cars changed batteries every day. The number of cars stalled for any cause whatever was one for every 50 car days, that is, one car would get into difficulty every 1,450 miles.

During the month of June, 1915, cars on the road represented 1,594 car days, 988 exchanges of batteries were made, or about 64 per cent of the cars changed batteries every day. The number of cars stalled for any cause whatever was one car for every 477 car days, or the average car would get into difficulties once in every 14,310 miles.

Cost Recording

The accounts assigned to the vehicle and battery departments are arranged under the same general plan as all other company accounts. The accounts under battery service are divided as follows: The property account covering purchase of batteries; the property account covering purchase of service apparatus.

The operating accounts for the "service" are:

Operating Labor—This account includes labor for exchange of batteries, filling, charging, changing solution and shift labor covering the whole twenty-four hours of each day.

Operating Material—Includes distilled water, solution and any other material used directly for the batteries.

Repair Labor—The labor for actual repairs to batteries.

Repair Material—Any parts for repairs to batteries or any repairs made at factory.

Repair Service Apparatus—Includes labor and material for repairs to charging sets, extra Universal cradles, Odometers, Cowen trucks and all other apparatus used in handling batteries.

On Basis of per Car per Month

Cars in Service	Car Months
32 at end of 1st year.....	178
46 at end of 2nd year.....	521
62 at end of 3rd year.....	687
At end of 3-year period.....	1,386

	1st year	2nd year	3rd year	Total
Operating labor	\$15.59	\$18.06	\$12.74	\$15.06
Operating material	2.04	2.34	1.87	2.14
Repair labor	0.00	0.00	0.04	0.02
Repair material	0.32	0.21	0.45	0.35
Repair service apparatus.....	0.09	1.71	1.00	1.40
Power	2.92	3.05	4.12	3.79
Total of operating items.....	21.61	25.23	20.81	22.97
Income	31.14	35.62	38.65	36.52

Defend Milwaukee Fuel Prices

Gasoline Dealers Explain Test Ratings Assailed by City Chemist—Light Thrown on Evaporation Losses

MILWAUKEE, WIS., October 18—Milwaukee oil dealers are up in arms over the statement published in all city newspapers that consumers in Milwaukee are paying from 15 to 20 per cent too much for their fuel. The statement emanated from the office of the health commissioner and is based on a survey made by R. C. Cunliffe, city chemist, who has made exhaustive analyses of gasoline marketed by all companies in Milwaukee. Cunliffe's conclusions are:

"The results indicate that a 63 deg. Baume test gasoline (low test) is more likely to be a 60 deg. Baume, and that a 70 deg. Baume (high test) gasoline is frequently nearer 67 deg. When we consider that 62.5 deg. and 70 deg. Baume gasolines are selling for 12½ and 18½ cents, respectively, and that thousands of motor vehicles are operated in Milwaukee, the seriousness of the cost question is readily apparent.

"If 12½ cents per gallon is paid for 63 actual test gasoline and 18½ for 70 test, the price for 66 or 67 test should naturally be around 15½ cents. It is quite obvious, therefore, that a '67 test gas' sold for 18½ cents as a '70 test' would result in an overcharge of from 15 to 20 per cent. Our investigation shows that this is being done in some instances."

The oil dealers answer the health commissioner's statement by taking exception to the claims made by Cunliffe. Aubrey G. Maguire, president of the Bartles-Maguire Oil Co., one of the largest independents, has the following to say:

"These claims are without foundation. All of the oil and gasoline received by the five jobbers who handle petroleum products in Milwaukee is tested and approved by state oil inspectors. Every carload is tested as it arrives and written certificates showing its gravity are given to the dealers. These tests are made after the oil has been taken from the car and delivered to the tanks in order that there will be loss in gravity during the time of its arrival here and its deposit in the tank.

"All gasoline is sold by refiners on what is known as the two-spread, on account of the interchangeable conditions of crude oil. Gasoline loses 5 per cent in handling and the lighter the goods the most costly the loss. A car of gasoline leaving Pennsylvania at 69 deg. gravity arrives in Milwaukee with about 100 gallons lost by evaporation, and also loses perhaps ½ deg. in gravity, depending upon the time on the way.

W. F. Willis, chief deputy state oil inspector, said:

"There is no 70 deg. Baume test gasoline sold at the test of 70 deg. It is sold with a test of 68 to 70 deg. The state law in regard to gasoline allows a leeway of 2 deg, and if this gasoline tested only 66 deg. and a sales ticket showed 68 deg., the purchaser would not be defrauded."

The Wisconsin law relative to sale of gasoline is very strict. The seller is required to give the purchaser a certificate showing the gravity of the gasoline, but permits of a variation of 2 degrees, as stated by Willis, to compensate for the peculiar characteristics of gasoline. There have been no arrests for alleged violations of this law in Milwaukee for at least three years.

Gasoline Made from Waste Gas

DALLAS, October 14—Several plants for the manufacture of gasoline from natural gas will be built in Texas within the next few months, according to the statement of James Howard, representative of one of the companies that is preparing to engage in the industry. It is stated that there are now about 50 plants in Oklahoma that manufacture gasoline from what is known as casing-head gas, which comes direct from the well with crude oil. The total output of these Oklahoma plants is about 80,000 gallons daily. They are located at Tulsa, Bartlesville and other points and are being constantly increased in number.

The gas which is now utilized for the manufacture of gasoline was formerly a waste product. In California there are said to be about 20 plants of this kind and they have a total daily capacity of about 35,000 gallons. Some gas runs higher in gasoline than others. It takes about 500 cubic feet of gas to yield 1 gallon of gasoline.

The grade of gasoline that is obtained from natural gas is more volatile than that which is obtained from crude oil. It grades all the way from 75 to 90 deg. gravity, and it is then reduced to a gravity of about 60 deg. by treating it with naphtha.

Sponge Better Than Hose

In most of the great garages in Paris where the finish on the car is prized to an extent unapproached in any other city of the world, the use of the washing hose is never allowed. In establishments where the hose is tolerated it is usually provided with a rose, which breaks the power of the stream.

Denver Depends on Farmers and Stockmen

Dealers' First Experience With Fall Show Brings Prediction of 50% Sales Increase—1915 Registration 55% Ahead of 1914

DENVER, October 15—The motor car show conducted by the Automobile Trades Association of Colorado was held in connection with the International Soil Products Exposition and attracted thousands of people from a wide territory.

Many of the dealers express more enthusiasm over this show than they have ever displayed concerning a winter show in this territory. It was practically their first experience with a fall show, their display last year having been run only two days, in connection with a racemeet staged by the Denver Motor Club, although that experiment aroused considerable sentiment in favor of holding a show in the fall.

Although direct sales are rather difficult to count thus early, there are favorable reports from several dealers in this respect, and all state that they have reached a goodly number of substantial prospects. The advertising value of exhibiting cars to nearly 150,000 people, many of them prosperous and up-to-date farmers ready to buy machines, is considered tremendous.

Have Their Cash Ready

For this particular year the majority of the dealers favored the fall as the best season for a motor show. Some of them thought a month later would have been better, on account of the late harvesting in this section of the country, especially among the sugar beet farmers, while others argued that a month earlier would have been better, on account of the early announcement of the 1916 models, and also because they believed the warmer evenings would have increased the attendance. But there seemed to be a general agreement upon the proposition that the majority of the farmers and stock raisers have either realized considerable of their income from this year's crops or stock, or know well enough what to count upon to be able to determine whether or not they can buy a car this year. And many of these prospective buyers are both able and ready to buy now.

New cars for this territory, and also such new features as the eight-cylinder motor, have proved exceptionally attractive, so that the dealers feel that the show has accomplished a great deal in the way of reaching and educating hundreds of people who otherwise might not have seen their respective cars for many months if at all. "There's one of those eight-cylinder machines we've been hearing so much about, and now

we have a chance to look at it," has been a frequent remark among visitors.

The automobile section was centrally located in respect to the general exposition, and so it received some attention from practically all the thousands of people attending the farm fair. An entirely exclusive building could not be had without prohibitive expense, and while nearby machinery and the constantly moving crowds caused considerable confusion, the dealers managed to make clear the leading features of their cars and to gain encouraging opportunities for demonstrations and other "follow up" factors for closing sales.

Demonstrations by Appointment

Demonstrations were made by appointment, the salesmen meeting their prospects at their residences, places of business or hotels. This system was considered far more effectual than keeping demonstrating cars outside the exposition buildings, inasmuch as the big event was held near the heart of the business district instead of at a fair ground on the outskirts of the city.

The plan of holding the automobile show in connection with the farming exposition instead of independently gave the advantage of gaining a greater attendance, and also relieved the dealers of all financial responsibility beyond the cost of their individual exhibits. The exposition managers provided all the buildings and general running expenses, and the Automobile Trades Association cooperated by selling and distributing the show space and helping in a general way to make the entire exhibit as big a success as possible. Some dealers prefer an exclusive show in respect to location, as a general rule, but all seem satisfied with the other plan under the peculiar conditions prevailing at this particular time.

Farmers Are Big Purchasers

The Denver distributors depend largely upon farmers and stockmen for their steady business, as is indicated by the comparative increase in motor car registration in Denver and the outside counties of Colorado, where there are but few cities of considerable size.

The Denver registration thus far this year is 8,317, as against a total registration of 6,120 for 1914, while this year's total for the outside counties is now close to the 20,000 mark, as against 12,313 last year. This gives Denver an increase of a little more than 35 per cent and

the outside counties a gain of 62 per cent over last year, while the total of 28,000 for the entire state shows an increase of nearly 10,000 cars, or 55 per cent, over the 1914 registration of 18,433.

This year's growth, in numbers, has doubled the 1914 gain of 4,809 cars over the total 1913 registration of 13,624.

Expect Sales Gain of 50%

The Denver distributors sold more than 5,000 cars in their territory during the 1915 season, and their general prediction is for a gain of at least 50 per cent during the 1915 season. They base this estimate upon their 1916 sales up to the present time, the prospects they have come into touch with, the favorable condition of farming, stock raising and mining, and also the substantial growth of the motor car business in this territory during the last two or three years. And this show has enabled them to check up extensively upon the outlook throughout the territory.

The territory covered by the Denver distributors usually comprises Colorado, Wyoming and a part of New Mexico, and sometimes includes parts of Arizona, Utah, Nebraska and Kansas. The show attendance from the entire district has been good, and reports have been favorable regarding farming, stock raising and mining, the leading industries.

The attendance from the subdealers out through the territory was not as large as expected, but those who came felt that the show would help their business a great deal. One reason for this small attendance on part of the outside dealers is the difficulty they have in getting cars fast enough to fill their orders. Some cars have to be sold for delivery in 60 days or even longer, and this situation tends to work against the enthusiasm of the dealers. This condition, as well as the interest of Denver distributors in the show, is strikingly illustrated by the fact that some of the cars exhibited were demonstrators borrowed from nearby dealers outside of Denver.

How Display Space Was Allotted

The motor display occupied about 4,500 square feet of floor space, which was sold at 50 cents a square foot in units of 200 square feet for cars and 100 or 50 for accessories. The space was allotted all at one time by a drawing among the dealers exhibiting, but the show committee favors changing next time to a system of allotting the space as fast as it is sold, thereby stimulating early contracting for space and also giving the small purchaser a better chance. On this occasion, however, there was plenty of space to give everybody a good location, and all the exhibitors were satisfied with the arrangement.

This two weeks' show, while lasting longer than the dealers would have chosen for an exclusive motor show, has

strengthened the sentiment in favor of a fall show, provided the new models are brought out in the summer as they were this season. And some dealers declare themselves strongly believing in the value of a fall show regardless of the time the new models are brought out, and even if another show is held in the winter. These base their view upon the importance of reaching the farmer and stockman in the fall.

The 1915 Denver show is counted upon not only to prove a substantial aid to the motor car business in the Rocky Mountain region, but also to promote greater harmony and cooperation among the several dealers and raise the standard of the automobile trade in this section.

Opinions of Exhibitors

What some of the exhibitors think of the Denver show is given in their own words:

Tom Botterill, Pierce, Hudson and Dodge distributor, chairman of the show committee and director of the Automobile Trades Association: "The advertising value of this show has been very great. The exposition has attracted the most intelligent farmers and their families, the class interested in handling their soils and crops scientifically. These are the farmers who are purchasing automobiles. We have secured a number of live prospects, and have made several sales of Dodge cars. I only favor a fall show inasmuch as this is the time the farmers are most interested in the purchase of automobiles. For an exclusive show, I should much prefer December or January, provided the manufacturers produce their new models at that time. If they continue to bring them out in July or August, then I should certainly prefer a fall show. Our sales are made mostly to well-to-do people, and this show has helped us more with the farmers than with our city prospects. We have had only a fair attendance from our sub-dealers, but the show is going to help them greatly because many of their prospective buyers have attended. I do not believe that we are yet big enough to make an exclusive show

pay, and I favor an automobile show in connection with a fair or exposition such as this one. I believe the best method of organizing and conducting a show is to place the entire proposition in the hands of one man, this man to have absolute charge of securing exhibits, taking care of the financial end, the organization, etc.; he to be assisted, of course, by a committee of the dealers. Uniformly good crops and generally favorable business conditions promise to make the 1916 season better than the past year."

Farmers Ready in Fall

A. M. Platt (Paige and Stearns): "This show has brought several good prospects, with indirect sales at the office. Sales seem 50 per cent easier this year than last, and I look for a big increase in business. I favor a fall show, but I believe a month later would be better in this particular territory, to give the farmers a chance to get their late harvesting and threshing out of the way, and especially to take care of their sugar beets."

H. C. Headington, Colorado Cartecar Co. (Metz): "I'm for the fall show every time; for that's when the farmer is ready to buy. We feel justified in crediting 30 direct sales to this show, and have also contracted with six new agents. It will help us throughout the territory."

Finlay L. MacFarland, MarFarland Auto Co., Packard and Buick distributor and member of show committee: "While we see no direct selling results from the show, there is no doubt but that the advertising value is good. We favor a fall show because it is advisable to show models as early as all dealers have secured their cars. We are also in position to show the enclosed cars with some assurance of being able to sell them. The 1916 season will show at least a 50 per cent increase over 1915."

Favors Two Shows

J. C. Kimsey, president of Mid-West Auto Sales Co. (King): "This show has been an excellent thing, because the exposition has brought the outside buyer in direct contact with the latest products and given him a chance to select the car he wants for his service. I am really in favor of holding two shows, one in the fall, to reach the farmers and stockmen at the right time, and the other in mid-winter, preferably at the time

of a stock show, though in that case in an exclusive building away from the turmoil of crowds, animals and machinery, when all the new models can be properly presented and the buying public will take time to give due attention to automobiles. We have met many good prospects through the show, and the outlook for the 1916 season is splendid."

R. R. Hall, Cadillac distributor, and member of show committee: "This show has brought our car before people we might never have reached otherwise, and has done a great deal toward educating farmers to buy cars of the class of the Cadillac Eight."

Good Introduction

J. A. Nisbet (Scripps-Booth): "The interest has been better than I expected, and the Scripps-Booth car, being new in this part of the country, has gained a most valuable introduction."

The car dealers who exhibited follow: E. J. Johnson, Chalmers; Colorado Motor Car Co., Saxon; Mid-West Auto Sales Co., King; W. W. Barnett, Oldsmobile; MacFarland Auto Co., Packard, Buick and Buick truck; James A. Nisbet, Scripps-Booth; Tom Botterill, Pierce, Hudson and Dodge; Cadillac Motor Co. of Denver, Cadillac Eight; Platt-Fawcett Motor Co., Paige, Stearns; Colorado Cartecar Co., Metz.

Kansas Has Auto-Thief Association

KANSAS CITY, October 14—An Anti-Motor Car Thief Association is being organized in Kansas City to take a large part in the effort to eliminate car and accessory thefts. The project is boosted by the Commercial Club, having been launched by Geo. H. Forsee, Industrial Commissioner of the club. A small membership fee is to be charged, probably \$1 to \$5 a year. A man will be employed to work either independent of the police or in cooperation with them in running down motor and accessory thieves. The new association is to cooperate with the Anti-Horse Thief Association of Kansas and similar clubs.

Men Who Direct the Destinies of the Utica Automobile Trade Association



Carroll is treasurer of the Utica Cycle Co., supply dealer



Ledermann is president of the A. A. Ledermann Co., Pierce-Arrow dealer



Schiller is of Schiller & Creswell, Detroit electric dealer

Repairing and Adjusting

How to Prevent Oil

Loss in Valve Guides

Many engines lose oil from the tappet guides, and in Fig. 1 are four methods of dealing with this nuisance.

In method A the tappet itself is doctored, a groove being ground in the center. This groove is of peculiar design, the upper portion being sharp cut and the lower part gradually chamfered, the idea being that the oil escaping past the rounded portion is met by the sharp edge when the tappet is descending, and is forced down with an action similar to the scraper ring on a piston.

In B a deep recess is countersunk in the top of the tappet guide, and forms a slight well where oil can accumulate. If there is still a tendency for the oil to overflow, the idea can be carried a step further, and we arrive at Fig. C, where the well has been increased by soldering to the top of the guide a collar made from a piece of brass tube $\frac{3}{8}$ inch in depth and of such diameter as to be just slipped over the head of the guide.

Method D merely requires a narrow groove to be filed in the full length of the guide. It need be only $\frac{1}{16}$ inch deep and the same in width, its purpose being to allow the escaping oil to drain back again into the crankcase. Particular care must be taken that both the top and bottom edges of the groove are perfectly clear, and not blocked by chips of metal, or the passage of the oil will be impeded. Oil constantly escaping from the tappets makes the whole engine in a mess, and these methods are simple means of effecting a cure.—Light Car.

KNOCKS HARD TO LOCATE

The Road Man visited one repairman who had just been up against a very peculiar motor knock. It sounded as though it was in the camshaft, but everything seemed tight and all right. As a last resort the factory was communicated with and it was found that the camshaft bearings were out of line, due to some of the jigs having been in a fire.

TESTER FOR LOOSE BEARINGS

The following is a description of a device, Fig. 1, which is intended to detect a loose crank bearing or piston pin bearing of a connecting-rod without removing the oil pan. It is also used for testing leaky piston rings. Take a foot pump and add a cup washer the reverse of the regular one so that one will act in each direction. Make a brass fitting

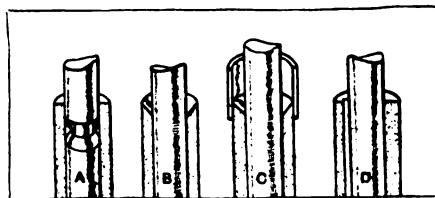


Fig. 1—Four methods of preventing oil loss from valve tappet guides

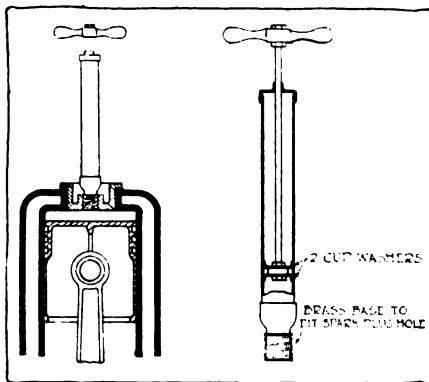


Fig. 2—Pump tester for locating loose bearings

to take the place of the base of the pump, the end of which is threaded to fit the spark plug hole. With the piston on upper center, screw the tool into the spark plug hole and by working the plunger up and down, the piston will be alternately raised and depressed and any slack in bearings detected, also by listening at breather hole, any leak past piston rings will be heard.—C. R. S., Detroit.

LOCATING CONDENSER TROUBLE

No spark, or a weak one, and the latter is indicated by the fact that the plug will spark in the air but not in the cylinder, is sometimes the result of condenser trouble. This may be very simply determined by using an ordinary house lighting circuit and a test lamp.

If the current is alternating, then the lamp is connected in series with the two ends of the condenser terminals, or, in other words, connection should be made at both sides of the breaker, whose points must be open.

If the condenser is leaky, the lamps will light. The lamps should correspond in voltage to the circuit; that is, 110-volt lamp for a 110-volt circuit, etc.

With direct current a different method is employed, although the lamp and condenser are connected in the same way. If the condenser is broken the lamp will light, but if it is in good condition this may be demonstrated by charging and then discharging the condenser. Charg-

ing is accomplished by breaking the circuit several times. Discharging is done by bringing the condenser terminals together immediately after charging. If it is in good condition the lamp will not light and a spark will occur.

RESETTING SPRING LEAVES

Within reasonable limits springs can be reset cold, but if they have gone badly and require to be put back in the fire, they should not be left to the mercy of a smith who is not a spring expert, but should be returned to the makers. Cold setting can be done by hammering each leaf over a swage block, or over the jaws of a vise, as shown in Fig. 3, but care must be taken in the process and a great deal of patience exercised—a number of light blows are far more easily controlled than one heavy one. As a spring when opened is of the appearance shown in Fig. 3, it follows that the camber of each leaf is different, and the setting up of it must be done accordingly.—Light Car.

PREVENTING BOLT TURNING

It often happens that bolts, which are situated in out of the way corners, are difficult to hold steady while the nut is being tightened. The bolt should be taken out and held in the vise, while two or three radial indentations are roughly cut on the under face of its head by the aid of a chisel. It will be found, on replacing the bolt, that this treatment will have a somewhat similar effect to the action of the commoner type of spring washer. The groove markings on the bolt head will bite into the surface against which they are pressed and will obtain a grip on it, thus preventing any tendency to turn while the nut is being tightened.—Light Car.

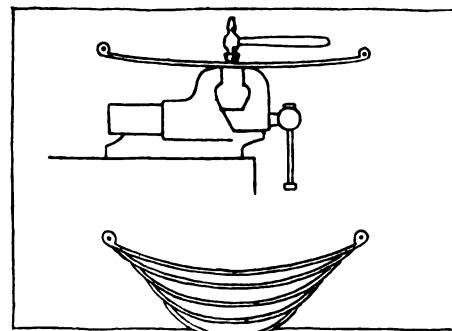


Fig. 3—Method of resetting springs

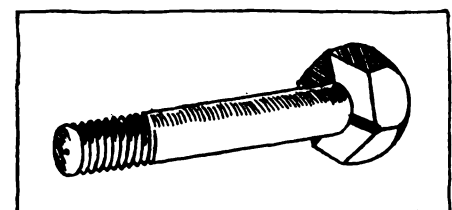


Fig. 4—Bolt showing nicks cut in the head to prevent it from turning

S. A. E. Committee Recommends Standards

Mid-West Section Formed in Chicago and Temporarily Organized

Suggestions Made for Dealers and Repairmen

CHICAGO, October 18—There is now a Chicago Section of the Society of Automobile Engineers, this newest member of the family having been born at the regular quarterly meeting of the Standards Committee, held at the Chicago Automobile Club today. It will be styled the Mid-West Section. The temporary organization work is being carried on by President William H. Van Dervoort as chairman of a special committee; Mark A. Smith, Standard Oil Co., vice-chairman; Daniel Roesch, Armour Institute, treasurer, and Darwin S. Hatch, Motor Age, secretary. Immediately a charter is granted the section will complete its permanent organization.

Simplifying Repairshop Practice

The formation of this section followed the meeting of the Standards Committee, at which a number of recommendations of interest to dealers, garagemen and repairshop operators were made. Among other things it is proposed to standardize the size of license plate brackets, as well as the size and lettering of the brackets themselves insofar as that is

DIVISION	RECOMMENDATIONS
Iron and Steel	Suggests that the limit for sulphur content of steel be raised to .045-.054. New test pieces of a modified form adopted by the society for testing material are recommended.
Miscellaneous	Recommends that location of the four holes for attaching license plates be standardized as shown in Fig. 3. For the rear bracket the committee believes a central light at the top is most feasible and most efficient. Recommends that manufacturer's car number be placed on the outside flap of the right frame member as far forward as possible and stamped in letters $\frac{1}{4}$ inch high. Recommends that motor number be stamped on the top of the crankcase. Recommends that published weight of a car include the actual scale weight of the car complete with catalog equipment less fuel and water. Recommends that the size of base and the location of attaching holes for power-driven tire pumps be standardized as shown in Fig. 1. Progress reports are made on the subjects of piston rings, hose and hose clamps and speedometer drive connection. Specifications for clutch facing and V-belts and pulleys likely will be referred to the new motor and transmission committee.
Research	Is conducting an investigation on tap drill sizes and developing a standard method of carrying out acceleration tests.
Truck Standards	Recommends it is not advisable to add a 32-inch truck wheel for small vehicles. Recommends standard wheel diameters of 10, 16, 20, 22 and 27 inches for industrial trucks.
Electrical Equipment	Recommends adoption of four standard sizes of wiring for starter motors and three separate sizes for generator and lighting equipment. Will attempt to standardize application of starting motors and wiring installation. Recommends as the only remedy for headlight glare to improve methods of focusing sockets and reflectors and to standardize height and angle of the lamps so that light beams shall be a certain width and strike the ground a certain distance ahead of the car.
Ball and Roller Bearing	Is gathering data looking to the standardization of taper roller bearing sizes.

possible. It is also proposed to standardize the location of the manufacturer's car number by way of making it easy to find and to discourage the theft of cars.

The work which has been done by the various divisions of the Standards Committee and the recommendations which they make are summarized herewith.

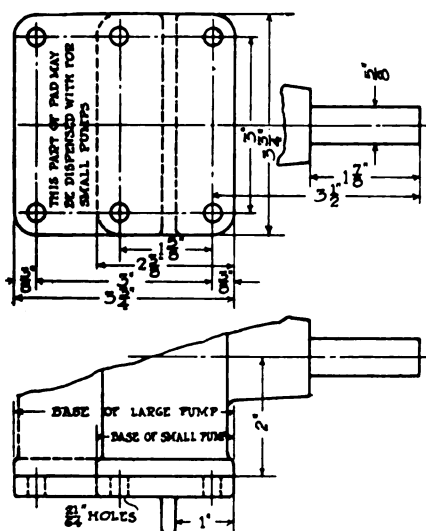


Fig. 1—This shows the standard sizes recommended for the bases to which power-driven pumps are attached. A single base may be drilled to take two sizes of pumps, or when the smaller size is to be used the base may be made only large enough for that size

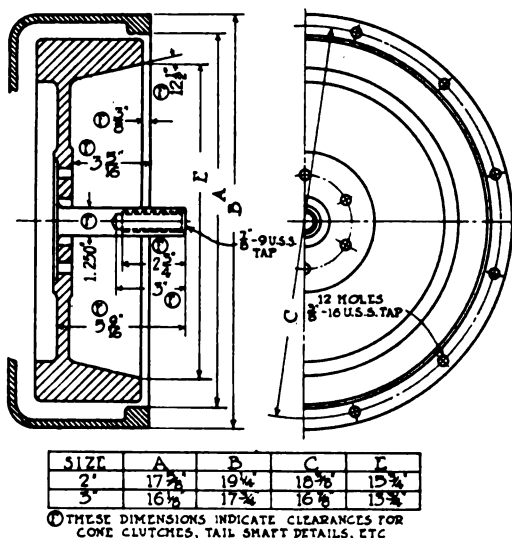


Fig. 2—Clearances for cone clutches and the details of tail shaft construction are indicated by this drawing; as well as the number, size and location of holes and the threads of those which are tapped. The principal dimensions are given in the table

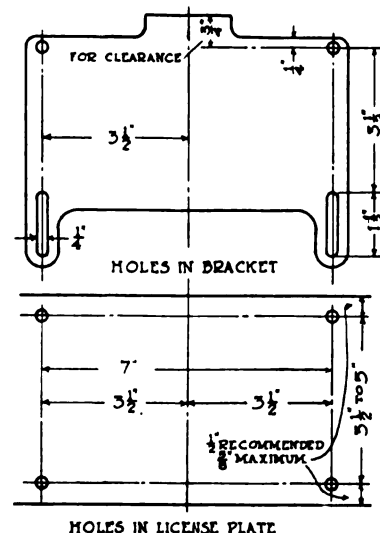


Fig. 3—It has been recommended that the location and size of the four holes for attaching the license plate be standardized as shown. Uniform positioning of brackets, and a central taillamp also are recommended as best practice

Dealer's Legal Status

Garageman Must Proceed in Recovering a Car Stolen from His Garage as if Car Were His Own—But He Is Not an Insurer of Cars

By George F. Kaiser

A JUDGMENT of \$2,400 was recently recovered against a garage company in Washington for the loss of a car which had been stolen by the company's night man. The garage company carried on the garage business in the city of Tacoma. Part of its business consisted of washing cars for customers who would deliver them to the garage at night and call for them in the morning.

One morning when one of its customers called for a car which had been left for washing, the car could not be found, and it was discovered that the night man, who had been left in charge of the garage, had disappeared with the car. The owner thereupon sued the garage company for the value of the car and succeeded in recovering a judgment of \$2,400.

The Supreme Court of Washington, in affirming the verdict against the garage company, said that when the car was delivered to the garage company the garage company was under a duty to exercise reasonable care in keeping and returning machines to the owners, and in case a machine was stolen its duty would include using reasonable diligence to recover it. As the garage company made no effort to follow the man who had stolen the car until two days after it had heard he had been seen proceeding toward Olympia, the court held that it did not use reasonable diligence to return the machine to its owner, and therefore affirmed the judgment. (Tacoma Auto Livery Co. vs. Union Motor

What is there about the law that you do not understand and that you want explained?

Have you a contract of which you are not sure?

What about the lease on your place of business?

Can you hold that car for the bills its owners owe you?

This department is in charge of a competent, experienced legal advisor who will be glad to answer any and all questions pertaining to the legal status of the dealer.

Car Co., 151 Pacific (Washington) 244.)

It must be remembered that garagemen, when storing cars for other people, must use "that degree of care which the average man of sound mind and good common sense would ordinarily take of his own property under similar circumstances." Although the garageman is not an insurer of the cars which are left with him, and will not be responsible for a loss or damage which may result to the owner, still, if the car is taken away from the garage while it is in the garage company's care he must do what the average man would do if his own car were taken; that is, try to get it back. When, as in the above case, an employe is left in full charge of a garage and he takes out the customer's car, the dealer is just as responsible as if he himself took the car out without authority.

thereon, shall be punished by imprisonment not exceeding three months or by a fine not exceeding \$100."

Section II of this Act further provides:

"In order for the owner or keeper of such a garage to obtain the benefits of this Act, a printed copy thereof must be posted up in some conspicuous place in said garage."

MUST HOLD FIVE CARS TO BE GARAGE

Under the new New Hampshire Motor Vehicle Act, which became effective May 1, 1915, it was provided that a dealer shall include every person who actually is engaged in the business of buying, selling or exchanging motor vehicles on commission or otherwise, and the word "garage" is held to mean every place where five or more motor vehicles are stored or housed at any one time except only such places in which motor vehicles are kept by the owners thereof without payment for storage.

A large number of states either adopted new motor vehicle laws or changed their old laws at the last session of the legislature, among them being Maine, Washington, Delaware, California, Idaho, Iowa, Minnesota, Michigan, Nebraska, New Jersey, New Hampshire, Ohio, Oklahoma, Oregon, Rhode Island, Tennessee, Utah, Vermont and South Dakota. Although it is impossible to set all these laws out in detail, any inquiries pertaining to them will be answered gladly.

When Contracts Are Unenforceable

When a dealer and a subdealer in motor cars make a contract providing that the latter will buy and the former will sell 30 new motor cars, delivery to be accepted according to the "attached schedule," and no schedule is made or attached, the subdealer can recover back his deposit at any time, as the agreement is unenforceable as to the remaining cars he contracted to accept until they are tendered to him. (Hessenius vs. Wetmore, 153 N. W. (South Dakota) 937.)

"DEALER" IN CALIFORNIA

Under the new vehicle act of California of 1915, a garage is defined to mean "every place of business where motor vehicles are received for housing or storage for compensation."

A dealer is defined to be "a person, firm, association or corporation having in his, its or their possession vehicles for sale or trade and for use and operation pursuant thereto."

Some Garage Lien Laws Interpreted

Owner Who Defrauds Garageman in Maine Can Be Imprisoned—
New Hampshire Defines a Garageman

Editor Motor World:

Can you kindly tell us what provisions there are in the laws of Maine for a lien in favor of garagemen?

(Signed) J. S. T.,
Bangor, Me.

Chapter 214 of the Public Laws of 1913 of Maine, entitled "An Act for the Better Protection of Automobile Garage Keepers and Owners, Section I," provides:

"Whoever puts an automobile in a

public garage or other place where automobiles are stored for hire and without having an express agreement for credit, procures supplies, accessories or accommodation for himself or said automobile and with intent to defraud the owner or keeper of said garage removes or causes to be removed any such automobile from such garage without paying the reasonable charges due for repairs, supplies, accessories and accommodation furnished

\$421 in a Month

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"They Also Serve Who Stand and Wait"



"Some of you dealers get an agency contract, stick it in a desk drawer and then think you are dealers"

That's What Escott Believed—Also, That's Why He Nearly Lost the Sennett Car Agency

By Ray W. Sherman



"You don't shave; you smoke a stinking old cigar when you demonstrate and never take off your hat to a lady"

ESCOTT, from Durham Basin, was in bad—very bad. He was in so bad that he deemed it expedient to pay a visit to Reilly in Callawassa, for C. J. Reilly, Inc., be it known, was lord and master to Escott so far as the sale of the Sennett motor car was concerned. Reilly was distributor to Escott, and was the sole mediator between the subdealer and the maker of the car, the Sennett Motor Car Co., of Sayanna.

How Escott knew he was in bad is a long story. To start with, it is safe to assume that every human being has a faculty which tells him when he is not in favor in certain quarters. Sometimes he doesn't have to be over-wise either to understand it.

Many little things had come up since Escott signed up his subagency late last winter, and Reilly had even gone so far as to tell him he was punk. When your distributor tells you you are punk your intuition is quite likely to tell you he doesn't think any too well of you.

Reilly Took the Floor

Escott wanted the contract for the 1916 season, and he didn't know whether he could get it or not. But he wanted it. So he got out his 1915 demonstrator—which he hadn't sold yet—and hied him over the hills to Callawassa.

They were not long in getting down to business. And when they got that far Reilly took the floor and acted as chairman of the meeting.

"I'll tell you, Escott," he almost shouted, "I don't give a — whether you sign up or not. In fact, I'd just as soon you told me you didn't want the agency for next year. It might save me the unpleasantness of telling you you can't have it."

"But, Mr. Reilly—"

"Oh, don't begin butting now; I haven't said you couldn't have it, although for all you've done I don't see why you want it very badly. You sold only one car last year. That isn't paying you for your trouble. Why don't you get something to do that will pay you better for your time? Get a job in the

cement mill; there's more money in it and you'll know just how much you've got coming every week. You aren't doing anything with the agency. There ought to be a lot of Sennetts sold over there every year. Why, you haven't even sold your old demonstrating car yet!"

Escott Said "Yes"

Escott interrupted: "I know I sold only one car and I know I ought to have sold more, but—"

"But what?"

"But—but—you see—I don't know—maybe I didn't go at it right. I know I didn't sell as many as I thought I would."

"No, you certainly didn't!" returned



They also (get) serve(d) who only stand and wait

the distributor. "You didn't surprise me very much at that, once you got started. I'll tell you what's the matter with you, Escott, if you want to know. Do you want to know?"

The only thing Escott could politely say was Yes, so he said: "Yes."

"You believe in that old saying from somewhere or other that 'They also serve who only stand and wait' or something like that. Well, that's what you've been doing—standing and waiting. But whom you're serving by it is more than I can tell you. You surely aren't doing much good to yourself or me either."

"There are lots of dealers, subdealers and salesmen like that, Escott. They never seem to get a proper conception of what the motor car business amounts to.

They think the big thing is to get an agency—which is true. The first thing is to get an agency, but after that they ought to throw a little pep and ginger into the game and do things. But instead of that they stand around like some salesmen at an automobile show. If anyone comes along and demands attention they will talk to him, but as for making a whole-hearted attempt to get business they never seem to think there is such a thing. They simply stand and wait—and a lot of them are waiting only for the cancellation of their contracts—and they don't know it. That's been your case.

"Some of you dealers get the agency contract, stick it in your desk drawer, if you have a desk, and then think you are dealers. So far as what the contract says you are, but from all outward appearances and results you are not—decidedly not!"

He "Picked Things Up"

"The little garage-shop of yours over there in Durham Basin isn't a place of business. It's a dump. You haven't cleaned it out in—How long since you have cleaned it out?" demanded Reilly.

"Why, we pick things up every Monday," expostulated Escott.

"Yes! Pick things up! That just about describes it!" shot back Reilly. "If your wife's floor sweeping and mopping consisted only of going around and 'picking things up'—there was scorn in the tone in which Reilly quoted the subdealer—"how long would you stand for it? You'd raise the devil in a week! Your house would begin to look as bad as your garage, and you'd kick like a steer! Wouldn't you?"

"Probably I would." And Escott tried to smile, but it was a horrifyingly sickly smile that he smiled.

"Yet you expect me to look with favor on the dump you've got over there. You 'pick things up!' I'll bet you haven't seen the floor since the week it was laid. I'll bet it never saw a mop and water or soap and a broom! Did it?"

"No."

"And yet you come over here and tell me you're a dealer. And you go around the country over there with my sub-agency contract in your pocket and tell everybody that you represent me and the Sennett car in that territory. And I'm supposed to be proud of you! I'm supposed to call you one of my army of dealers and to point to you with pride, am I not?"

"Oh—not that—"

"But it amounts to the same thing," asserted Reilly. "If I let you represent the car I let you represent me, and as long as you have that representation I'm supposed to stand back of you, for you're one of my dealers."

"You take the prospect leads that are sent to you by the factory and make a weak effort to sell a car. But you go out to see them in your shop clothes and with grease on your face and grime on your hands! You don't shave, you smoke a stinking old cigar when you demonstrate, and you don't think of taking off your hat when a woman comes into your office!"

"Who told you that?" indignantly demanded Escott.

"Isn't it true?"

He Was On—and Off

"Maybe, but who told you? You never saw me!"

"No!" retorted Reilly, shaking his finger at the conscience stricken man, "I never saw you, but I've seen lots of others that way, and you have all the earmarks of being in that class. I'll tell you, Escott, I'm tired of having such poor subdealer representation! I'm at least going to have Sennett cars sold in a clean place or they aren't going to be sold, that's all! There must be men somewhere who are willing to sell cars in a clean way and I'm going to have them. I——"

"I suppose you'll get a lot of curbstoners!" was Escott's taunting remark.

"Yes, by ——! I'll get a lot of curbstoners. I'll put a curbstoner right in Durham Basin if I have to! I'll appoint 'em all curbstoners if they'll sell cars as this car should be sold—and is going to be sold. You come in here to me!"—Reilly was hot—"and talk to me about curbstoners and I'll fill your darned little town full of curbstoners. You kick about curbstoners and play dog in the manger. You won't be a decent dealer yourself and don't want me to have any one else."

"Well——"

"Well, nothing!" Reilly cut him off. "I'm willing to stick by you and the rest of the dealers over there and make the business a regular business, but I'm darned if I won't have something to say about the way these cars are sold. If you want the agency for another year you go back to Durham Basin and get busy. Don't get a mop; get a hoe first. Clean up some of the grease and dirt."



"Get the junk out of the back corners. Wash the windows. Clean up the office. Clean out the dump"

Get the junk out of the back corners. Wash the windows. Clean up that corner that you call the office. Get a shave. Clean out the dump. I'll come over a week from today and see what it looks like. And get over the idea that all there is to being a dealer is getting a contract and then settling down in apathy and waiting for some one to come in and demand a car."

"I'll——"

"I'll make some money for you, Escott, if you'll do as I tell you."

"How?"

"Just you wait," said Reilly. "Do as I tell you and I'll bet fifty dollars you make more next year than you made this year. Are you on?"

Putting the proposition this way meant something to Escott. He lost his feeling of resentment.

"I am on," he said, "and," going toward his car, "I am also off."

Troubles That Beset Trucks in War Zone

Low Clearance Breaks Oil Pumps and Tie Rods—Cooling a Serious Problem—Brake Adjustments Inaccessible

LONDON, October 10—In a recent visit made by an American truck representative with a military transport to the front in Flanders, an opportunity was afforded of observing the work of motor trucks in the war zone. Since the opening of the war many changes have been made which have increased the efficiency of the trucks. Chief in this regard is the putting of men who have had most experience on certain makes of trucks and keeping them driving these makes. It has also been found profitable to keep trucks of the same make as close together as possible in the same convoy, and increasing the size of the convoys to do this. It has been found advisable to have a reserve wagon accompany convoys, this wagon equipped with the necessary spare parts, and skilled mechanics for the particular make of truck used in the convoy.

A frequent trouble with not a few English makes of trucks using force-feed

lubrication is that they have the pump in the bottom of the crankcase sump with outside oil pipes delivering the oil from the main bearing to the crankshaft. These external pumps are rapidly broken by vibration, which is immediately followed by loss of oil and in nearly every case burned out bearings are the natural result.

Not sufficient protection is given the ignition system to make it waterproof in several makes of trucks. Bad weather conditions have made many of the roads near the front veritable water bogs. The water splashes through the radiator and is then carried by the fan through the ignition terminals.

On many English makes the road clearance is not sufficient, with the result that the tie rod of the steering gear frequently strikes the ground, throwing the wheels out of line. There are other makes which because of the small clearance really bury themselves in the mud, and some with large rear axles which catch the mud have not power enough to drag themselves out.

Some trucks are very much behind in the matter of lubricating the wheels, which in some cases is done by a large grease cup threaded into the outside of the hub. The same is true with universal joints. It is the exception rather than the rule to see grease cups remain in; they all loosen due to centrifugal force.

Trucks without water pumps are generally boiling all of the time. In fact, cooling is one of the most serious matters with many trucks. This is aggravated by the lack of attention given trucks by many drivers, and also by road conditions.

Another serious fault is that clutches are not sufficiently fool-proof and quite frequently have not a large enough factor of safety to take care of the overloading and poor driving the vehicles are subjected to. In almost 99 out of 100 trucks observed the drivers had their heavy military boot resting equally heavily on the clutch pedals, which meant early trouble.

Brake adjustments are very poor, being so frequently in inaccessible places or requiring some special kind of tool, which is invariably lost, to make the adjustment.

There is a great scarcity of rubber tires. Scarcely a week ago 150 American trucks of one make were still being held in the crates at a French port waiting for tires.

The situation in England with reference to America is quite unusual. The sentiment against American trucks is strong, but it is a dog-in-the-manger attitude, because all of the British makers are booked up with the war department for six or eight months, and as trucks are needed there is no place to get them from but America.

Facts About Cars

Why the Spark

Must Be Advanced

It takes a very short but appreciable amount of time for the flame to travel from the spark points to the furthest parts of the cylinder and therefore the spark must be made to occur slightly before the maximum explosion pressure is desired. This maximum pressure should occur about the time the piston is at upper dead center and is beginning to start out on the expansion or power stroke.

Therefore, the spark must occur enough before dead center to allow the flame to travel through the chamber and burn the charge. Whether the motor is running fast or slow, with a given working compression in the cylinder, it takes a certain constant interval of time to complete combustion after this spark takes place.

When the motor is running slowly this period of time is so small in comparison with the time for the completion of a full revolution that it may be neglected, but when the motor is operating, say ten times as fast, the time that it takes for flame propagation must be considered and compensated for by advancing the spark.

Effect of Speed Changes

If the motor is running 200 r. p. m., then it takes 30/100 of a second, let us assume, for one revolution. Now supposing that it takes 1/100 second for the flame to spread, then the crank pin will rotate through 1/100 divided by 30/100 or only 1/30 of a revolution. One-thirtieth of a revolution when the piston is at upper dead center is negligible. But if the speed is increased ten times it will only take 1/10 of the former time for one revolution, or 3/100 instead of 30/100.

However, the time of combustion is exactly the same, namely, 1/100 second; thus it is seen that while combustion is taking place the crank is rotating through that part of a revolution represented by 1/100 divided by 3/100, or 1/3. In order to compensate for this difference the spark must be advanced 1/3 of a revolution before upper dead center is reached. This amount is rather large, due to the fact that round numbers were chosen, but it serves as an illustration.

This only partly explains why it is necessary to advance the spark. There is also a time lag in the production of the spark by the magneto. A small amount of time elapses between the mo-

ment that the breaker points separate and the spark occurs at the plug.

The speed of flame propagation depends on the compression; the greater the compression the greater the speed. If the throttle is closed the compression pressure is reduced to a minimum and the rate at which the flame travels is greatly lessened. Thus with the motor running at a given speed, the spark must be advanced farther when the throttle is closed than if it were open, if the combustion is to be completed by the time the piston reaches dead center.

Frictional Electricity

May Ignite Gasoline

Although it is not generally known, a considerable amount of frictional electricity may be generated by some of the ordinary processes of filling automobile tanks and serious fires may thus result. In one case a block of wood with a hole in it had been placed over the opening of the tank, with the result that after the 5-gallon can of gasoline had been partly run through the funnel, a spark leaped from the can to the funnel, setting fire to the gasoline fumes.

Another instance was that of a chauffeur who hung a 5-gallon can by a bail on the hook of a common self-measuring pump. It was insulated from the pump by the wooden handle of the bail. After pumping about a gallon, a spark jumped from the can to the pump, setting fire to the fumes.

A 16-foot rubber hose with a metal nozzle shut-off was held close to the car tank but did not actually touch it. After a little pumping a spark leaped between the tank and the nozzle.

Somewhat similarly frictional electricity was generated in a canvas spout covered with shellac and hanging from an overhead pipe, the spout not quite touching the metal of the tank. The friction of the gasoline passing through this spout and running against the shellac coating was said to cause from 400 to 500 volts.—Walter L. Wedger, state chemist of Massachusetts.

High-efficiency Motor on the Wane in Europe

A year ago, when the British and French manufacturers were getting ready their 1915 designs that would have been seen last fall, had it not been for the war, it was quite noticeable that the tendency was distinctly toward a slight reduction in volumetric efficiency; that

is, there was a tendency to reduce the horsepower per cubic inch of piston displacement.

This was because the ultra high efficiency motor is ultra sensitive to any sort of derangement, is ultra costly to build and is ultra heavy for its power. In this connection it may be well to look at aeroplane engine development. It was thought in Europe in 1912 that the best possible engine for aeroplane work would be one following the ideas of the racing car motor. But actual trial showed that aeroplane engines of low volumetric efficiency gave better results in practice; that engines built with the sole idea of obtaining the most power from the least weight were altogether different from the high efficiency engines that the racing car had brought into being. Broadly, the explaining reason was that the racing car engine was so highly stressed that it had to be heavy if reasonable reliability was to be obtained.

Made Motors Bigger

Use of these engines showed that poppet valves were troublesome, because the power fell off so fast if the tappet adjustment was a hairsbreadth out of true, if the ignition was not in perfect condition and if the carburetor was not highly tuned. With Knight motors the efficiency did not depend upon the valves, of course, but the very high-efficiency Knight motors had their troubles none the less.

As a consequence the 1914 engines were a trifle larger than the 1913, and if the 1915 cars had appeared it would have been seen that this tendency had persisted.

Whether we have reached the useful limit of horsepower yet remains to be seen, but it stands to reason that there must be a limit. I think that we are nearing the day when nobody will care much how many cubic inches a motor has, but will regard only the weight and the ability. In other words, the performance on the road and the cost of that performance in fuel, oil and tires. It is emphatically the car that is light by comparison with the passenger load it can carry which is going to come out on top.—A. Ludlow Clayden.

INDEFINITE USE OF ENGINE

OIL NOT DETRIMENTAL

There are no detrimental effects due to using motor oil over and over again, provided, however, that the oil is very thoroughly cleaned. Straining through an ordinary cloth does not clean the oil to a sufficient extent. It is necessary to filter it through waste and charcoal and then pure sand in order to get all of the detrimental foreign matter out of the oil.—C. W. McKinley, chief engineer, Willys-Overland Co.

At Top, Splendor and Beauty

The Crying Need for Improvement in the Merchandising Conditions of the Final Retailer

By Ray W. Sherman

MINNEAPOLIS, October 15 — When one visits the plants of the northwest distributors of cars in the Twin Cities and then visits the establishments of the hundreds and thousands of dealers and subdealers out in this vast territory, one is reminded of the condition that prevailed in France before the great Revolution. At the top there was splendor and beauty. At the bottom there was—well, there wasn't splendor and beauty.

That is as far as the analogy really applies, and it doesn't apply in all cases at that, but it is a sad fact that there is a crying need for improvement in the merchandising conditions among these final retailers who are the root of the industry. And after a visit to both ends of the selling system of the trade one is impressed with the fact that the big distributors have before them a mighty task—that of making better business men out of their dealers and subdealers.

Why Should He Do It?

Among the small towns of the Northwest are dealers who are superior to some of the distributors in Minneapolis, but this is the exception rather than the rule. In every town there are good dealers and in every town there are poor ones, so far as places of business are concerned. The good dealer in one town and the good dealer in the next town do not always handle the same car. Each distributor has on his list some that are excellent and some that are not.

Perhaps the distributor may ask: Why is it my duty to do anything toward making my dealers better business men? The distributor may well ask the question, for why should he? There is no law on the books that requires him to do it, he is under no obligation to do it—and neither was the United States under obligation to free Cuba or succor the war-stricken of Europe, but she did it.

It would be a long, hard, and in many cases thankless task for the distributor. Often his advances would be repulsed with indignation. There are men who resent being reformed; in fact, it probably is human nature to hit the nose that butts into your business. The cop who steps into a family row generally gets the worst of it.

There is no question but that certain reformative steps by the distributors would mean more and better business for both the distributor and the dealer;

This is the fourth of a series of analytical and investigative articles by Ray W. Sherman, who is traveling in the Northwest territory for the express purpose of getting closely in touch with the intimate problems of dealer, garageman and repairshop operator. The fifth will appear in an early number.—Editor.

and there is no question but that the distributor can do much if he so plans, for, in a way, he can compel where he cannot induce. He holds the master hand. It is for him to say who shall handle his cars.

On the other hand, the distributor probably takes what he can get in many towns, because if he does not accept a poor dealer he must go unrepresented in that locality, and the poor dealer does sell cars; there is no question about that.

But in every field of endeavor, in every trade, there is an opening for the man who will labor for improvement, and in the motor car trade of this section it does seem as if the logical man to step in and start the move for better business is the distributor—and for three reasons:

Hypothetical Cases

1—He is himself a good business man.

2—He is in direct touch with the dealers.

3—He can dictate where he cannot induce.

As an indicator of conditions let us take four of the towns which are fed cars by Minneapolis. Let them be called A-ville, B-ville, C-ville and D-ville. The cars we shall also designate as the A-car, B-car, C-car, etc. D-ville is considerably larger than any of the others.

In Minneapolis the E-car distributor is one of the best in the business. His place is clean and he operates on a modern system of business. The conditions in his place of business may be described as ideal, a model for any dealer. He would not tolerate in his own office some of the things that exist in the salesrooms and garages where his cars are sold, out in the territory.

In A-ville this E-car is handled by the best man in town. He, too, is a model for a dealer. He is businesslike, his place is clean, he makes an honest

profit, does not cut prices and stands as the undisputed leader in his county.

In B-ville the E-car is located in less favorable surroundings. The dealer is also a garageman, and his garage is not clean and neat. New cars, bright and shining, an ornament to any decent salesroom, stand on a garage floor alongside older cars; there are patches of oil here and there; the repairshop is in close proximity; there are indications of shiftlessness; and while this dealer denies it, his competitors say he cuts prices. A little improvement would make a wonderful difference. It would make this a regular place of business. Now—If the Minneapolis distributor of the E-car were to take a more direct interest in the business of this man would it not rebound to the credit of the E-car in B-ville?

A Little Would Help a Lot

In C-ville the E-car is handled by one of the best places in town, but there is room for improvement. The office is in disorder; the garage could stand a little more cleaning; the place with a very slight improvement could be made one of the best in the Northwest. Would not the distributor and the E-car be directly benefitted by this improvement? And could not the distributor bring it about?

In D-ville this same E-car is handled by a man who has a regular salesroom. There are the stage properties and scenery for an ideal establishment, but the dealer needs a little instruction in the art of mop and broom. Would this dealer give up the agency rather than clean up? It is a desirable agency and were he shown the advantages of cleaning up he undoubtedly would be glad he had been made to do so.

The E-car distributor is always in close touch with these dealers; he has road men who visit them; they could inspect; they undoubtedly do notice things now; but it does seem that the E-car distributor could work out a plan whereby conditions could be improved.

Greeted by a Mechanic

Take the F-car. This is distributed by another of the best distributors in the Northwest. The place of business is beautiful. The methods are businesslike. Things are ideal.

In A-ville the F-car is handled by a man on a side street. He has the F-car sign displayed in his garage window—which could stand a bath. He has no salesroom. His office is untidy. Entering the front doors, one views the whole garage which might look several hundred per cent better. When I called the only man to greet me was one of the mechanics, and mechanics seldom can be dressed for company when they are at work. And this one looked a little worse than seemed necessary. A mar-

velous improvement could be made here.

In B-ville one of the best men in town handles the F-car. He does not cut prices and his place is a model. He furnishes a good pattern for other dealers, but these patterns never seem to be utilized very extensively.

In C-ville the F-car is handled by one of the oldest dealers in this section. He has no salesroom, but does have an accessory store. Comparing his place with that of his distributor there is only one word that applies, and that is "dump." If an earthquake struck the Northwest it might improve appearances in this place; it certainly would not make them worse. It wouldn't take much time or labor to work a wonderful change here. Disorder is the principal fault.

Clean Up! Clean Up!

Take the G-car. Its distributor is another of the best in Minneapolis. He is a fine business man and runs a model place.

In A-ville the G-car is handled by a dealer whose place possesses possibilities. It is a semi-garage-salesroom. There are accessories displayed, but not in very good order. There is a lack of neatness. It is surprising what a difference it makes to one entering a salesroom or garage to see everything neat, clean and in order, while the contrary is equally striking.

In B-ville the G-car dealer doesn't realize the condition of his place of business. Like many others, he seems to have settled into a rut so far as the appearance of his place is concerned. Disorder prevails, and while the Motor World representative was there there were indications that this dealer wastes enough time every day to make his place shine if he only went at it. If the distributor were to say: "Clean up or lose the agency," what would this man do?

In C-ville the G-car is handled by what probably would be called a curbstoner, so as far as conditions in his place of business are concerned they hardly apply.

In D-ville the G-car is handled by a man who has a salesroom, but it ought to be cleaned up. The whole place ought to be cleaned up, and the proprietor could stand a little improvement in his personal appearance.

Examples Innumerable

In A-ville the C-car is handled directly from the factory. This factory is a model of industrial beauty. The dealer in A-ville has a place which possesses wonderful possibilities and a little effort could work a really wonderful change.

In A-ville the J-car and K-car are handled in a repairshop. The dealer is dirty and of unpleasing appearance and habits. No woman would care to deal with him. There are things about his place of business that cannot be printed. The distributor of this car is not of the

best so far as a place of business is concerned, and to this the factory might pay some attention.

It is possible to enumerate instances until they become more tiresome and monotonous than this enumeration already may be. There are good ones and bad ones in all lines of cars. There is a big need for improvement, and the distributor could do much. It would require systematic planning and operation; it would necessitate diplomacy and the schooling of the road men—but it could be done.

In conclusion it may be added that the territorial conditions in the Northwest in this respect are no better or worse than in other sections. The same applies everywhere Motor World representatives have been. There is a big need for improvement. These may be cutting words, but why cover up the situation? The more light it gets the sooner may the better condition be brought about.

The striking point about the situation in the Northwest, however, is the opportunity which the distributor has to help along this good work. The distributors here are bigger, wealthier and more powerful than in probably any other part of the country. They have more dealers.

Some of the more important distributors here have more dealers than are on the lists of many factories. Some of them distribute more cars in a year than are built by many factories. Some of them are directly instrumental in keeping the wheels of the factories they represent turning.

The distributor of the Northwest is, in a way, a man of power. He controls hundreds of square miles of territory. He has a big field. If he set out to work an improvement he could do it. It seems characteristic of the West that anything that is thought of is half done. Therefore, all that remains is for the distributor to think the thought.

Gaining Good-will Through a Plain Statement of Facts

J. EDGAR MITCHELL

"YOURS FOR SERVICE"

W. EARL BRYANT

Mitchell & Bryant Machine Works

Stationary Gasoline Engines, Steam Engines and Auto Repairing

TELEPHONE NO. 81

WEST CLINTON STREET

HUNTSVILLE, ALA., 10/7/15.

An Automobile Story Entitled "Why"

A man drives an Automobile for a few months, becomes an automobile mechanic, he opens a first-class garage, handling tires and all sorts of auto supplies, washing and polishing cars and doing first-class repair work on automobiles. He employs help of his own class and charges 50 cents and sometimes 60 cents an hour for work. He gets all the work the shop can hold. In a few months things begin to fall, for what reason he does not know. He employs a young fellow whose father was a blacksmith, he is all right, but still things are falling—he charges a little more. The man that had some repair work done a few days ago has a large account running, buying tires and supplies. His repair job went down—it didn't last long—he wasn't satisfied, so the young fellow lost both his supply and repair account—couldn't collect it—WHY? He employs another young man whose father used to run a mill—he is a good mechanic, I know. A month passes and no work; he closes his shop or sells out to another of the same kind. He then goes out on the streets soliciting automobile repair work, carries a few wrenches, punches, chisels, hammers, etc. Drifts on and on, thus the story goes—WHY?

"WHY?" He has no knowledge of machinery, he has had no experience, very little education and no business experience at all. This has all to do with an automobile. Why pay a man to work on your car for hours, not knowing what he is doing, and ruining a perfect piece of machinery, by not knowing what kind of tool to use and what kind of metal he is hammering on, and wondering why it doesn't come off, and later finds a pin through this piece sometimes after it is broken. You, not knowing yourself, have to pay for all this, when you have, here in your city, a shop with myself (J. Edgar Mitchell) and W. Earl Bryant. Mr. Bryant having completed an electrical course with one of the best Electrical Schools in existence, and has had years of experience as an Electrician, and Automobile Mechanic. For myself, I have completed a Mechanical Engineering, course with one of the largest and best equipped schools in the United States. I served ten years with the Huntsville Foundry & Machine Works as machinist, and five years as foreman of the Machine Shop.

We have the ONLY AUTOMOBILE MACHINE SHOP IN NORTH ALABAMA.

We have made over two hundred axles and numerous other parts for automobiles right here in your city.

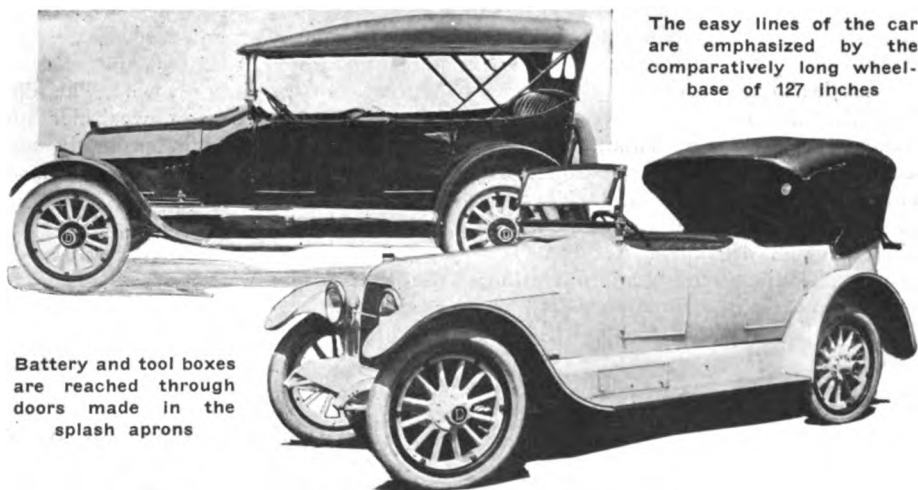
- ☛ We have been in business over two years.
- ☛ Business is good—we have never had a dull day.
- ☛ Collections are good—we never have any trouble with our collections.
- ☛ We don't mind the war—WHY?

We Know How, and we are,

"YOURS FOR SERVICE,

MITCHELL & BRYANT.

This is a letter which J. Edgar Mitchell is sending out to all the owners in his section. There was need of something of the kind, as the letter makes plain. The letter is neatly printed on the concern's stationery. Its burden is "We know how"



The easy lines of the car are emphasized by the comparatively long wheelbase of 127 inches

Battery and tool boxes are reached through doors made in the splash aprons

Daniels Brings Out Eight; Price Is \$2,350

Stream-line Body Has Double Cowl Effect and Is Trimmed With Cabinet Mahogany—Rear Axle Has Spiral Bevel Gears

THE new Daniels eight, produced by the Daniels Motor Car Co., Reading, Pa., is equipped with a Herschell-Spillman V-type, L-head, unit power plant, and lists at \$2,350. The cylinders are cast in two blocks with inlet pipes integral and exhaust pipes bolted on. The crankcase is an aluminum casting, the oil reservoir on the lower half being separate for easy accessibility. The fly-wheel is of semi-steel with a machine steel starting gear ring bolted on. The valves are operated from a single camshaft with sixteen integral cams, or one for each valve. The cylinder blocks are staggered a distance equal to the width of the connecting rod crankshaft bearing, thus eliminating forked connecting rod ends and double concentric crankpin bearings. The connecting rods work side by side on crankpins and are interchangeable, being I-section drop forgings of two-bolt cap construction.

Force-feed lubrication is used, regulation being gained by means of a safety valve which discharges excess pressure of oil on the spiral gears in front that drive the camshaft and fan. A geared oil pump is located within the crankcase sump, the former being driven by a vertical enclosed shaft and spiral gears. Oil passages are drilled in the crankshaft and the connecting rods are equipped with oil pipes, which allow the oil to be forced to the crankshaft, connecting rod and piston pin bearings. A Mayo cellular-type radiator of special design is used, water circulation being taken care of by centrifugal duplex pumps.

A Westinghouse electric starter, equipped with a Bendix pinion, is included in the equipment. This is a separate unit geared direct to the flywheel with push-button control accessibly located, and

DANIELS EIGHT FEATURES

Price	\$2,350
Make of motor. Herschell-Spillman	
Number of cylinders.....	Eight
Shape	L-head
How cast.....	Fours
Bore	3 3/4
Stroke	5
S. A. E. rating.....	33.8
Ignition	Westinghouse
Carburetor	Zenith
Starting-lighting ...	Westinghouse
Clutch	Dry disk
Gearset	3-speed
Wheelbase	127
Tires	34 x 4 1/2
Type rear axle.....	3/4-floating

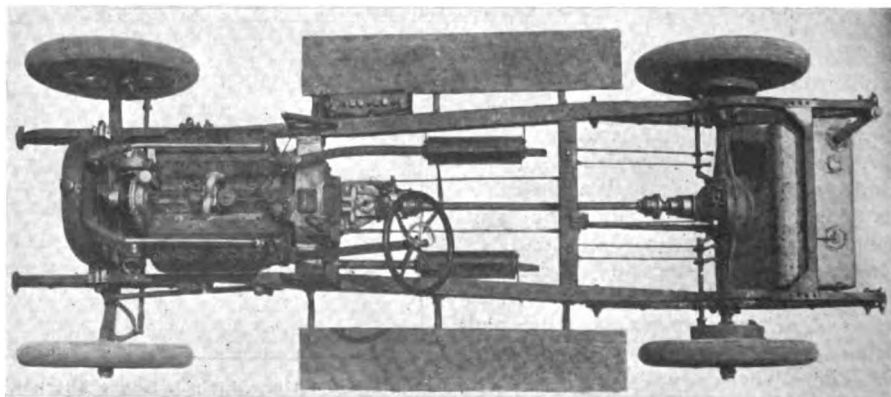
Equipment: One-man top, side curtains, windshield, electric horn, speedometer, extra rim and carrier, robe and foot rails, pump, tools.

designed for high-starting torque with a minimum consumption of current. The Westinghouse 6-volt generator is driven by a cross shaft and spiral gears at the front of the motor.

The Brown-Lipe selective gearset, with three speeds forward and one reverse, is fastened to the motor by means of a bell housing, thus carrying out the unit power plant idea. A multiple-disk, dry-plate clutch is used. This operates on ball bearings, which makes for positive and instant release. The propeller shaft is equipped with a double universal designed to eliminate whip at highest speed. Drive is taken through the rear springs and torque through a torque arm.

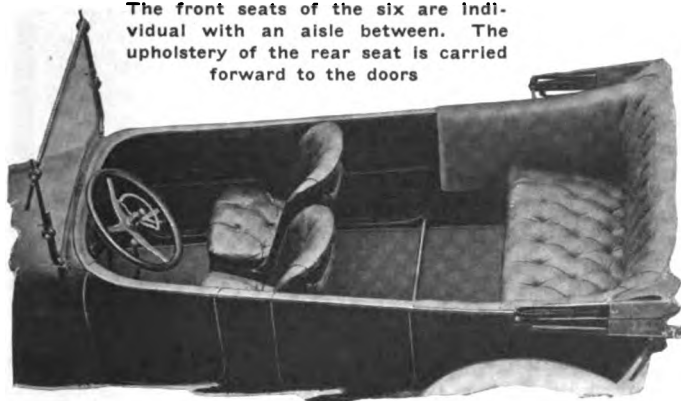
The designers of the Daniels eight have adhered to the conventional streamline body design. The double cowl is used, this being finished with heavy mahogany garnish rail around the entire top. Long-grained, hand-buffed leather upholstery is used throughout, deep cushions and backs being provided. The auxiliary seats fold into the rear of the front seats, which are finished with cabinet work mahogany. A step light is provided on the right-hand side, this being operated by the opening and closing of the rear door. The windshield is of the ventilating, rain-vision type, mahogany framed.

The frame of the car is of pressed steel, large channel section, heat-treated, strongly braced and narrowed in front to provide short turning radius. Alloy steel, semi-elliptic springs, front and rear, are used, with the rear springs extra long, 2 1/2 in. wide and underslung. The front axle is an I-beam drop forged Elliot type with taper roller bearings and ball thrust knuckle bearings. The rear axle, which is three-quarter floating, has a pressed steel housing and large diameter axle shaft, taper roller bearings and spiral bevel gears. Both internal and external brakes, 15 inches in diameter, are used on each rear wheel, both sets being equalized and easily adjustable. The brake drums are of pressed steel, bolted on through the hubs and also through the bossed rear spokes. Wheelbase is 127 inches.



The chassis is of conventional construction. The long taper of the frame avoids the necessity for making sudden bends. The propeller shaft is unenclosed

The front seats of the six are individual with an aisle between. The upholstery of the rear seat is carried forward to the doors



Unusually long, low lines are embodied in the six. The upper edges of the body have a tumble-home that is decidedly attractive



Empire Adds Six at \$1095; Improves Four

New Model Has High-speed Motor With 2-Inch Valves—
Four Has New Motor With T-head Cylinders—
Motors Differ Considerably

THE Empire Automobile Co., Indianapolis, has put a six on the market, this being an additional model. The four has been modified and given a good deal more power and has a new electrical system with separate generator and starting units instead of the single type machine used on the last model. Both cars have thoroughly up-to-date bodies of the straight side pattern, and the six has individual front seats. Extra wide rear seats are features of the tonneau and the six has a 21-inch door entrance.

To accommodate 2-inch valves, which give a high speed capacity to the motor, the new four has a T-head. It is considerably neater in appearance than the former engine. Cooling is thermo syphon. To guard against vibration there is an extra wide center bearing to the crankshaft and to care for the lubrication of this and the other main bearings large cups are arranged in the crankcase which are kept filled with oil thrown by the connecting rods. The electrical system comprises an Autolite generator and starting motor with Connecticut ignition and Willard storage battery.

The six is not very much like the four. Valves are all large and the degree of

Price, touring.....	\$895	\$1,095
Color.....	Green or Gray	Blue or black
Make of motor.....	Empire	Empire
Number of cylinders....	Four	Six
Shape	T-head	L-head
How cast.....	Block	Block
Bore	3 3/4	3
Stroke	5	5
S. A. E. rating.....	24.03	21.6
Ignition	Connecticut	Connecticut
Carbureter	Schebler	Schebler
Starting-lighting ...	Autolite	Autolite
Clutch	Cone	Cone
Gearset	3-speed	3-speed
Wheelbase	112	120
Tires.....	33 x 4	34 x 4
Make of axles..	Weston-Mott	Weston-Mott
Type rear axle.....	Floating	Floating

opening is increased by a high lift, so that 46 horsepower is obtained at 2,200 r. p. m. Lubrication is by constant level splash, with a plunger circulating pump, and a centrifugal water circulating pump is used.

A feature of the lubrication of the six is that the camshaft is contained in a separate chamber which is kept filled with oil. This is claimed to maintain a film of lubricant all over the cams and valve mechanism generally and so to have a great effect in producing quiet-

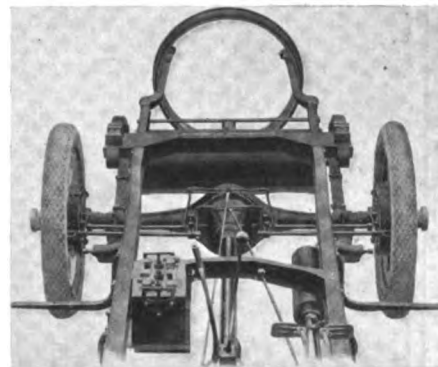
ness in operation as well as providing perfect lubrication.

All the electrical equipment is similar to that of the four, but the carbureter is a special horizontal model Schebler and the intake passages all within the cylinder block.

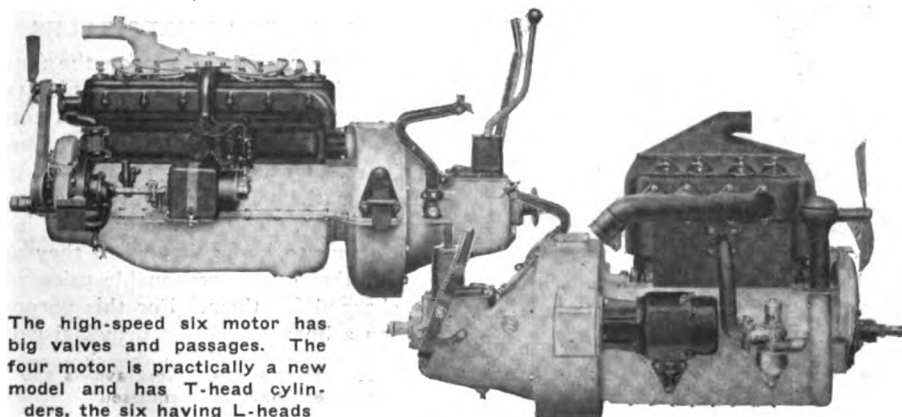
The chassis of both four and six are strongly similar, containing much the same features as former Empire cars. One difference, however, is the use of cone clutches, as the older Empire has a single plate pattern. These new clutches have light pressed steel cones and are leather faced, being also entirely enclosed by the bell housings. In the gearsets the main shafts are mounted on New Departure ball bearings and the shafts are above the normal size to give stiffness. Hartford universals are used.

Another change from previous practice is found in the mounting of the rear springs, which are now underhung on both cars. Of course, the frame and springs of the six are heavier than those of the other car, and the wheelbase difference is 8 inches.

Weston-Mott rear axles with straight tooth bevel gears feature both cars, the especially long brake equalizers used on the previous Empire four being again employed. Brakes are internal and external with a simple finger nut adjustment for the latter.



The frame of the six is extended at the rear to support the strapless tire holder



The high-speed six motor has big valves and passages. The four motor is practically a new model and has T-head cylinders, the six having L-heads

On the four the fuel supply is by gravity, but the six has a Stewart vacuum feed with the main gasoline tank hung from the rear end of the frame.

The Empire company will turn out the four in either Brewster green or French gray. The six is available in Royal blue or in black if desired.

WIDE-AWAKE MERCHANDISING

DIPLOMATIC WORK THAT MADE A SALE

Clever Idea Turns Foreman's Mistake to Profit

One day an owner brought his car into a garage to have the storage battery fixed. The foreman guessed at the trouble and faithfully promised to have it remedied in one day. But when the customer came back at the appointed time he was informed that it would take three or four days more. He was wild, first because he needed his car right away and second because he liked to have a man keep his word with him. Fortunately, on his way out, he ran into the proprietor, who ascertained his trouble and then tried to smooth things over. The man was a dentist, so the garageman proceeded to talk to him in the language he understood best.

"You're a dentist, aren't you?"

"Yes."

"You often tell a patient that it will take a certain length of time to fill a

tooth, and that it will cost so much, but when the tooth is uncovered and the cavity proves larger than you expected, it means that you must spend more time fixing it and possibly charge more for it also. Am I right?"

"Yes," admitted the dentist, with a reluctant smile.

"Well," continued the dealer, "the same thing holds true about batteries. We pride ourselves on keeping our word, but sometimes it is impossible to make an accurate estimate. When we started to work on your battery we found that it required rebuilding."

"But I must have a car and have one right away," returned the dentist. "Haven't you got one you can loan me?"

"No," answered the dealer after thinking a moment. "I haven't got an available car except that new one in the show room and you can't have that one," said he, with a meaning smile, "unless you buy it." The suggestion hit the right spot and in a few minutes the deal was closed.

This incident, which is a true one, only goes to show how one dealer by a little cleverness prevented the loss of a good customer and sold a car at one stroke.

IDEAS ALL AROUND READY TO BE USED

One Fellow's Stunts Can Be Applied to Another's Needs

Alertness is something that none of us has enough of. Most men think that they are alert, but those that take the trouble to analyze their actions day by day find that they really lack this important quality to a large degree.

Being fully alert means that you will make very few mistakes. When a problem comes up the best solution will be found for it in the shortest time. There will be no after wish: "If I had only thought of that two days ago."

Being fully alert means also that you will take advantage of every man's experience. When Jones in the grocery business down the street pulls off a stunt that brings a lot of extra trade you will immediately see how it can be applied with success to your business. Every idea that you come in contact with will be weighed, to find if it has any value in a business way to you.

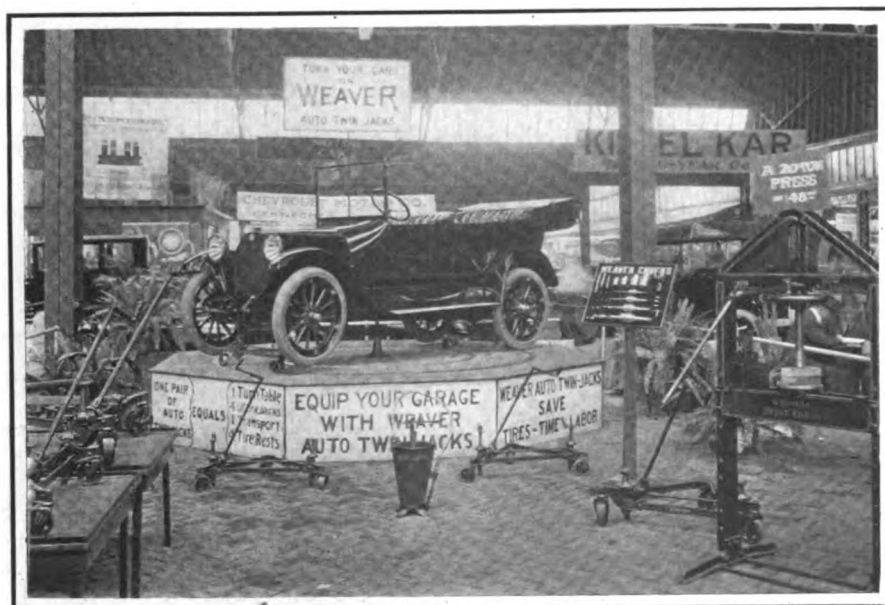
You will no longer be a slave to custom; your mind will no longer work in a groove. Each time that there is a new task to be performed it will be considered as an entirely new problem, and all the incidents in your experience that could possibly be of any service will be brought forth to aid in solving this problem in the most intelligent way. This method is in contra-distinction to solving it according to tradition or custom.

PARTS COST HELPS SALES

When a prospect is just on the fence I often land him by showing him the difference in the cost of our parts compared with the cost of parts on competing cars. Of course, I explain to the customer that while it will be a long time before he will need any parts, it is comforting to know that when they are needed that only a reasonable price will be charged for them. For this purpose I keep a board, with the principal parts and their prices on it, in the showroom.

—H. F. B.

State Fair Accessory Exhibit That Brought Business



How the Weaver Mfg. Co., Springfield, Ill., showed all its products at once. A motor was used to turn car on roller jacks. Power was applied through pedestal under center of car. The utility of the jacks for turntable work was demonstrated

Taking Advantage of Every-day Incidents to Build Trade

WAR

Since August 3rd (you know that day well), we have done as Italy, Roumania, Bulgaria and Greece did, prepared for any eventuality, and today we declare war on the defective automobiles or any of their parts. "Our artillery" (the mechanics of the different departments) is prepared to take care of anything on the automobile. We call special attention to our trimming or upholstering department and our overhauling or motor repair department. We will give estimates on any repair work and especially overhauling motors or complete overhauling of entire car, something the public has demanded but could never get. You know before you leave your car what it will cost you to put it in first class condition. We do not specialize on any car—they all look alike when they come in our shops.

In our upholstering department we are better prepared than ever before to take care of any kind of repairs on tops, cushions, curtains, slip covers and dust hoods, or we will build you new ones of any kind. Get our prices on any of this work, they can't be beat if consistent with the quality of our work. Satisfy yourself, don't listen to the "knocker."

All work in our shops is guaranteed. If satisfied tell others; if not satisfied, come at once to us and we'll make it right. We, Totman Carriage Works, 1213-1219 French street, are the only shop in Erie and this vicinity doing everything needed on an automobile. We can handle 75 cars at one time in our shops.

Come in and try us and be convinced. Our shops are perfectly safe.

MADE A SALE BY IMPROVING A CAR

New Wheels, Rims and Hood at \$27 Did the Trick

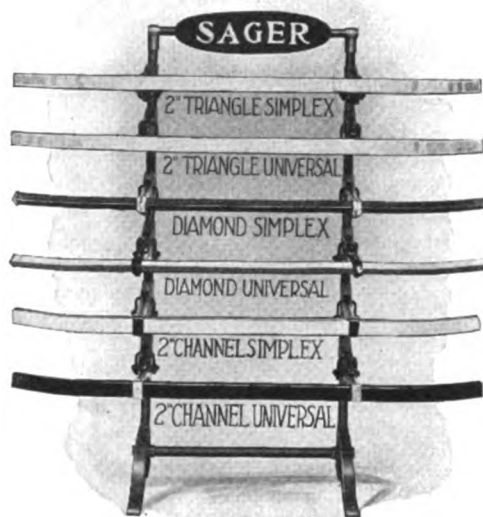
"Doc" had just bought a used Ford. It was 1915 model, in good condition mechanically and the paint was perfect. It looked like a new car. Still he was not satisfied. He surveyed it critically for a long while and then concluded: "It's all right except that the darned thing looks just like every other one in town." He pondered over the difficulty and was still far from a satisfactory conclusion when he dropped in to see his old friend and advisor, the garageman.

"I'll tell you what you need, Doc, to give that car individuality, and that is a set of demountable rims and a new hood," said the dealer, who always had the right argument at the right time. "Wheels with natural wood finish come with the rims, and that together with the sloping hood will change the appearance of the car entirely, and the total cost will only be \$27.

"All right," agreed the doctor, and the dealer proceeded to fill out the order.

DISPLAY HELPS FOR THE DEALER

There are many devices which are supplied by accessory manufacturers to their dealers for the better display of merchandise. One is illustrated herewith. Manufacturers who supply these devices are urged to forward photographs or sketches of them.



The Frederick E. Murphy Co., Minneapolis, whose story is told on pages 6 and 7 this week, has found that it can sell bumpers in connection with car sales, provided the bumpers are properly displayed. Here is a bumper display stand that is supplied dealers by the J. H. Sager Co., Rochester, N. Y. It shows six different kinds of bumpers and is an attractive fixture for any salesroom.

CERTAIN SERVICE CLINCHED A SALE

Paid Higher Price to Dealer Who Backed His Sales

"I want three of those 36 x 4½ tires for \$86," announced a customer recently at a garage where the Road Man was visiting.

"Just wait a minute," said the dealer. "I don't know whether you can or not. You see, our regular price for these three tires is \$95, and we cannot afford to cut it."

"But," returned the customer, "I can buy those through So-and-so for \$86, and you sell more tires than he does."

To which remark the dealer laughed and then said: "Listen to me. Some time ago you bought a tire from So-and-so. You had to wait weeks for it, and when it did come it did not give satisfaction. You took it back to him and he said that he could make no adjustment because he had sold it at cost. I have these tires in stock, and can make immediate delivery. My name stands back of them, and if there is anything wrong I am only too willing to make it right."

The customer was convinced that it was cheaper in the long run to pay the \$95, and the sale was quickly made.

Used Cars in Salesroom

A used car looks better in a salesroom than it does out in the garage or repairshop; therefore, the Frederick E. Murphy Automobile Co., Minneapolis, Paige and Mitchell dealer, puts its used cars in the salesroom. The room is large and a section at one side is reserved for traded-in vehicles of the better appearing class. They are cleaned and polished and make an attractive appearance.

It also helps in another way in making the used car sale. These cars will not be started on the salesroom floor. The man who is seeking a used car wants a good vehicle that will run, and wants to pay about so much for it. If everything seems satisfactory he generally says: "I'll take it if it will run all right."

When he says this the car is taken out and the prospect is given a demonstration, and having made the request that the car be taken out he generally buys.

GET CLOSE TO CUSTOMERS

Keep close to your customers. Know their needs and whims. The former will increase sales and the latter prevent loss of customers.

New Olds Eight at \$1,295 Mate for Four

Has Same General Lines and Chassis Design, but Different
Front End—Crankcase Halves Cast Integral
With Cylinder Blocks

AS WAS announced briefly some months ago, the Olds Motor Works, Lansing, is now building a \$1,295 eight-cylinder model as a running mate for its four-cylinder car, a new type with much the same general body lines, and pronounced similarity in the mechanical construction to the four, but with its front end entirely different.

Materials entering the construction of the power plant indicate a method to obtain maximum wearing qualities and lightness. Externally the engine is very compact. Each cylinder group is integral with one-half of the crankcase, which is divided not horizontally, but vertically. The detachable cylinder heads carry the spark plugs, priming cocks and water outlet connections.

The motor has a comparatively heavy crankshaft supported on two bearings. The main bearings are $2\frac{1}{8}$ inches diameter and $3\frac{1}{4}$ inches long, and connecting rod bearings are $2\frac{1}{8} \times 2\frac{1}{8}$ inches; the rods connect to the crankpins by a forked end construction. That is, one rod has a forked end and the opposite rod fits between the arms of this fork.

A single camshaft is employed, having sixteen cams, one for each valve, and to bring the ends of the tappets in direct contact with the cams the valves are inclined at a greater angle than the cylinders, thus bringing them to the camshaft at their lower ends and swinging them in closer to the combustion chambers at the top, making for a compact upper end.

The camshaft is driven by gears from the crankshaft, but outside of the camshaft gear and on the same shaft is a sprocket over which a silent chain runs to a sprocket on the generator, fan and distributor shaft directly above.

One notable feature is the location of the ignition distributor mounted on top of the support of the fan end of the

upper shaft. The distributor is an entirely separate unit from the generator and it is driven by spiral gear connection with the fan and generator shaft.

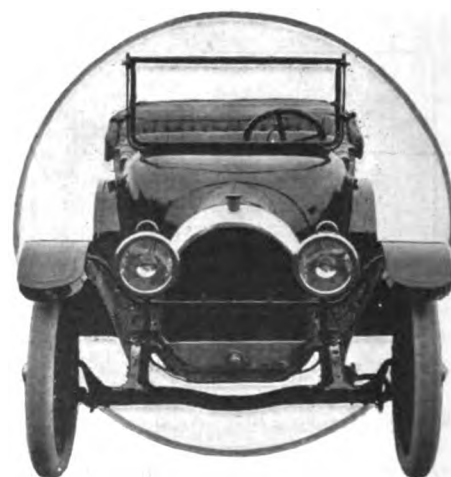
The fan, a nice bit of designing, is arranged for practically positive drive without noise and at a moderately high speed. Its drive is through a friction clutch, the tension in a coil spring on the end of the shaft serving to make the driving connection and the center portion of the fan serving as a housing for the spring as well as the friction part of the little clutch. The tension in this clutch is such that while the fan can

OLDSMOBILE EIGHT

Price, touring.....	\$1,295
Color	Red and black
Make of motor.....	Own
Number of cylinders.....	Eight
Shape	L-head
How cast.....	Blocks of four
Bore	$2\frac{7}{8}$
Stroke	$4\frac{3}{4}$
S. A. E. rating.....	26.7
Starting-lighting	Delco
Clutch	Cone
Gearset	3-speed
Wheelbase	120
Tires	33 x 4
Type rear axle.....	Floating

be turned by hand when the motor is not running, still there is no slip when the motor is operative.

Through the use of the Delco three-unit electrical system, it has been possible to dispose of the electric apparatus without undue congestion of the V between the cylinder blocks or the fitting of any unit into too small a space. By locating the generator at the rear end of the shaft that drives the distributor and fan it has an accessible and logical posi-



At the front end the new eight has an individuality that at once distinguishes it from the four

tion with provision for efficient drive. The starting motor is placed on the right side of the gearcase within easy reach through the front floor boards and gears to the flywheel through the Bendix drive system, with the shift forward.

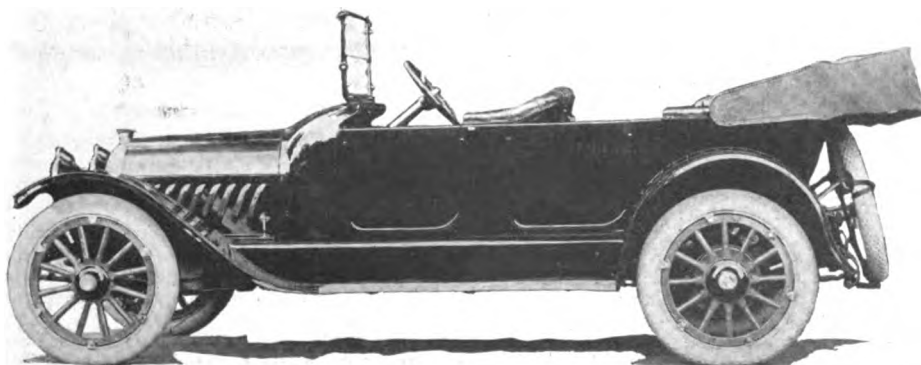
The water pump is of a double outlet type and is mounted on the front end of the camshaft, outside of the housing of the gears and chain.

The force-feed engine lubrication uses a gear pump at the front of the motor under the timing gear cover plate. This pump oils the two main bearings under a moderately high pressure, which gets to a maximum of 30 to 40 pounds per square inch at maximum crankshaft speed. A check valve, regulating the pressure, opens when the prescribed maximum is reached, the surplus then by-passing to the camshaft bearings and the front gears and chain. Through the drilled crankshaft the connecting-rod lower bearings are oiled and the overflow from these is sprayed up into the cylinders and the other bearing surfaces. There is an adjustment provided for regulating the tension of the spring of the check valve, this governing the pressure of the oil.

The Stewart vacuum fuel feed has the tank placed in the center of the back of the dash in the rear end of the engine V, which brings it close to the carburetor, making the fuel pipe very short. The gasoline tank is suspended at the rear of the chassis.

While the four and eight have the same frame and front axle, the eight possesses a heavier rear axle, the housing is a larger and heavier stamping and the driving shafts are increased, although of exactly the same general design. The gears are of nickel steel and are the spiral-bevel type to promote silence. The ratio is 4 5/12 to 1.

The clutch form offers nothing radical, having engagement springs which admit of ready adjustment. It has a diameter of $12\frac{1}{2}$ inches. Compactness is notable



The relationship with the older car is at once apparent. The 120-inch wheelbase is sufficient to permit excellent lines

in the gearset, which is fitted with hardened steel gears with the transmission shaft mounted on ball and roller bearings.

For the sake of standardization the chassis of the new eight has been made the same as that of the four, wherever this has been found possible and practicable. While some parts necessarily are heavier than those of the older car, due to the greater power to be resisted by the parts under stress, there is not a very great difference between the weights of the two models. The fact that the weights are so nearly alike made it unnecessary to increase the size of the members that are purely weight carriers; but such parts as are called upon to

transmit the driving power of the motor have been redesigned to impart to them the strength necessary to enable them to stand up to their work.

The eight uses the Hotchkiss type of drive with the propulsion and torque taken through the rear springs, the master leaf of each of which is made to care for these added duties. Rear springs are underslung and, like the fronts, are mounted so as to be nearly flat under normal load.

The eight is equipped with an eight-day clock, speedometer, one-man top, Collins curtains, electric horn, and all the other apparatus expected upon the car of today.

Eliminate Price-cutting Mail Order House

Dealer Objects to Price-cutting, But Not to Houses That
Maintain Prices—Should Be on the Same Basis
as Other Dealers

Editor Motor World:

We beg to acknowledge receipt today of September 1 number of your magazine, addressed to the writer, and have read carefully the letter on page 8, written by Mr. E. M. Cumings, of Cumings Bros., Flint, Mich.

We wish to say that we heartily concur with Mr. Cumings in the necessity for the elimination of the cut-price mail-order house. By the elimination of the cut-price mail-order house we do not mean the elimination of the mail-order house entirely. We mean literally what we say, the elimination of the cut-price house, or, in other words, the necessity of getting the mail-order house on such a basis that they will be unable to do business further at cut prices.

If the mail-order house is sold at such prices by the manufacturer that in order to make the profit they must enjoy to pay dividends on their tremendous capitalization, they will have to get standard retail prices for everything they handle, the dealer of automobile supplies throughout the rural districts will suffer no longer from this competition.

Moreover, the difference between the mail-order house and the country dealer will then be entirely in favor of the country dealer, inasmuch as being right on the ground, the country dealer will be able to give his customer service, where the mail-order house will be unable to compete on such a basis, as no purchaser in the country will be able to secure his supplies within three to five days as promptly as he can secure them from the local dealer.

In connection with this line of thought we refer you to the Hardware Trade Magazine, September 4 issue, on page

12 of which you will find report of an address to the Retail Merchants Association in South Dakota at Sioux Falls a short time ago by Mr. H. Leslie Wildey, of Graettinger, Ia., on the subject of mail-order competition.

In this article Mr. Wildey very clearly points out the unfairness of the manufacturer in selling to the mail-order house at the prices at which they are undoubtedly selling in order that the mail-order house can make the prices they are making at the present time.

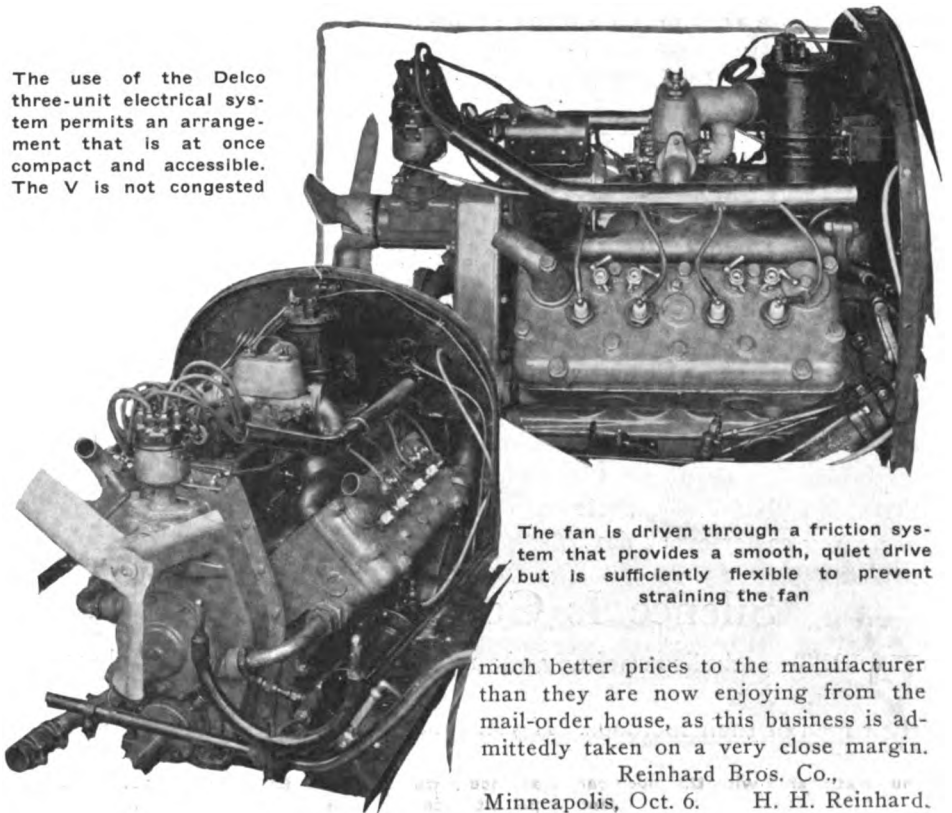
Mr. Wildey expresses clearly, we believe, the sentiment of the average country merchant: "He does not call for PROTECTION. He can take care of himself, but he does want equal OPPORTUNITY."

We believe that this address is the very best thing we have ever read on the matter of meeting catalog house competition. It expresses not only our views on the matter clearly and thoroughly, but the views of nearly every merchant with whom we have communicated on this subject since reading the article.

Most certainly the mail-order house is not a jobber, therefore why should the manufacturer sell to the mail-order house at prices which the manufacturer will not make to the average country dealer? Most certainly the mail-order house does a tremendous volume of business. However, they do nothing in the way of advertising for the manufacturer, other than to list the specific item in the catalog. The country dealer, on the other hand, issues no catalog. He does all his merchandising personally and in this way the manufacturer has a salesman continually in the field, as the country merchant talks the merchandise he sells and this is always worth far more than space in a catalog.

We believe were the manufacturer to place the mail-order house upon the same basis as they place other retail merchants, the question would be solved without loss of business to the manufacturer, as the volume of business would come anyway, either through the dealer direct or through the jobber, and at

The use of the Delco three-unit electrical system permits an arrangement that is at once compact and accessible. The V is not congested



The fan is driven through a friction system that provides a smooth, quiet drive but is sufficiently flexible to prevent straining the fan

much better prices to the manufacturer than they are now enjoying from the mail-order house, as this business is admittedly taken on a very close margin.

Reinhard Bros. Co.,
Minneapolis, Oct. 6. H. H. Reinhard.



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The TWENTY-FOURTH installment of
 Motor World's Campaign for Greater Profits.

SHOULD the car dealer sell accessories and supplies? More than once has this puzzling question come up in the past year. Some car dealers who have been long in the business say no. Others who have had just as much experience say yes. And each has reasons, apparently good, for his convictions.

For those who may be on the fence, the question is answered in no uncertain manner in the story which appears on pages 6 and 7 of this issue of Motor World. The Frederick E. Murphy Automobile Co. long has believed that the car dealer should sell accessories.

But up to recently, it was moving along in the same old groove that is occupied by so many other car dealers. It STOCKED accessories but it did not SELL a great many.

But now the situation is changed. The company SELLS accessories, and in one month the sales totaled well over \$400; the profit was approximately \$100. There is now a showcase on the salesroom floor; the car salesmen find no trouble in suggesting accessories after a car has been sold. In some cases, it has been a little difficult for a car salesman to do this, but it is becoming easier every day.

Silence Is Golden

DON'T speak disparagingly of anyone or anything: don't say nasty things about your competitors, their men or their methods. If you cannot find something good to say, say nothing.

These snide little things that you let slip are like

chickens; they come home to roost. And the worst of it is that the further they travel the more harmful they become; they gather filth as they roll along. If you say something bad about your neighbor, rest assured that he will hear about it in time. And unless he is very careful he is likely to retaliate by saying something worse about you. He can do it if he wants to. We all live in glass houses.

Study Your Tools

ONE of the characteristics of a poor workman in any calling is his inability to make the most of all the tools of his trade. Per contra, one of the characteristics of a good workman is his recognition of a good tool and his ability to make that tool do all that lies within its capacity. It matters not a bit what the calling or what the tools.

One of the tools of the dealer and the garageman is Motor World—and it is one of his best tools. It is a high-efficiency tool. It is capable of yielding results that old-fashioned tools could not. BUT—to get the best results from Motor World it must be studied. It must be studied carefully, closely, with a mind open for new ideas and impressions, open to just and helpful criticism and closed tight to resentment against the upsetting of cherished but cobwebby methods.

It won't do to go hastily through the pages of Motor World as if it were a magazine of light and entertaining fiction, stopping here and there when something happens to catch the skipping eye. Motor World is full of condensed information and hard facts. Some of these facts are exactly what you need in your business. The fact that you don't know that you need them is exactly the reason why you should take pains to study your paper, analyze the facts, turn them over in your mind to see how they can be applied to your business and, last and greatest, PUT THEM TO WORK.

An idea that remains nothing but an idea is no more use than a last year's bird's nest, but one good idea put to work may do anything from cleaning a floor to clearing a fortune.

Recommendations

EMPLOYERS should give truthful recommendations. A great deal of harm results from lack of observance of this simple rule. In fact, there are a great many employers who place little or no stock in references simply because it is hard to determine just how much of what is said in commendation is true.

Everyone knows why there is so much falsifying in writing references, that it is due to a false sense of pity for the man who is leaving. After discharging the employee, it is too often that he is let down easily by writing a glowing recommendation.

The result is that references are never taken at their face value, but always rated considerably below it. If you cannot truthfully recommend a man, say so.

Oh Wad Some Power Giftie Gie Us To See Ourselv's as Others See Us!

The Chicago Tribune Glimpses Some Garages

Like the iceman who is notorious for tracking dirt into the kitchen, like the plumber who smokes while the burst pipe is ruining the plaster, like the janitor famous for his laches in respect to hall lights and hot water, the man at the garage is fast becoming one of our unpopular heroes. Amateur motorists complain of these hypothetical experts that they never fix anything without breaking something else. A readjusted carbureter brings with it the extinguishment of lights and a mended clutch predicates an apathetic self-starter. The garageman is getting to be an irritating joke.

His clumsiness may not be serious to national welfare. As a symptom, however, it is serious. When automobiles first came in highly trained engineers devoted themselves to experimenting with them. The Cornell man with an M. E. after his name did not hesitate to climb under the car in a little shop and diagnose its ailments. It was not a menial job. He was a car doctor with the doctor's social prestige. That condition is no longer true. There are many more trained mechanics nowadays, but there are infinitely more motor cars. Taking care of them no longer presupposes expertness greater than that possessed by the ordinary handy man. It is now a trade, not a profession.

And in the meantime thousands of young men are going to Boston Tech, to Cornell, to Columbia, learning intelligent expertness. But few of them will be content to fix the motor cars of the next generation. Their eyes are upon our Col. Goethalses, upon our famous consulting engineers.

The garage business is unthinkable to most of them. It is not the dirt that makes it so. Grease and fine ground steel are the least of their troubles. It is the loss of social position. Many of them would make admirable automobile doctors. Most of them will try for the big jobs and fail, struggling along respectably enough, without loss of caste and without distinction. It is the waste of democracy.

It seems a far cry from the irritated jocularly about the man at the garage to so general a social thesis. But the man at the garage represents a national clumsiness, something out of joint in our social structure. Democracy as this country has developed it supplies the

incentive to training, but it prevents almost infallibly an economic use of such training.—Chicago Tribune.

SELLING ARGUMENTS BRED BY HYATT MILEAGE CONTEST

DETROIT, October 14—Widespread interest is being shown in the contest promoted by the Hyatt Roller Bearing Co. to determine the greatest mileage cars have attained on their original equipment of Hyatt bearings. From all sections of the country car owners are sending their car records and automobile dealers are taking more than ordinary interest, not only because of the cash prizes to be given, but owing to the importance the result will have in furnishing selling arguments for prospective customers. The contest closes November 1. The conditions follow:

1—Mileage shall be based only on the continuous service of Hyatt bearings without replacement.

2—Mileage must be determined by speedometer register providing car was so equipped.

3—If no speedometer tabulation is available for a part or all of the total mileage there must be authoritative or verifiable computation of distance traveled.

4—Car must be entered on official entry form and statements thereon warranted to be true.

5—Photograph of car entered should be sent with entry form if possible.

6—The judges shall have the right to examine bearings in the car.

7—Officials and engineers of the Hyatt Roller Bearing Co. also shall have the privilege of examining bearings in the car and of removing them for further examination in the Hyatt engineering laboratories. It is understood that if this is done the Hyatt Roller Bearing Co. will immediately replace free of charge these bearings with new bearings so the owner will not be without the use of his car.

8—The contest will close November 1 and all entries to be considered must bear the postmark not later than that date.

9—The age of the car will not necessarily be a determining factor. An automobile built in 1912 may have traveled more miles by now than one built in 1903 or 1906. It is the mileage record alone that will decide the contest.

10—In case of a tie for any prize offered, a prize identical with that tied for will be given to each prize contestant.

The judges are Alfred Reeves, general manager of the National Automobile Chamber of Commerce; Coker F. Clarkson, general manager of the Society of Automobile Engineers, and Julian Chase.

Illinois Can Have Lien Law

PEORIA, ILL., October 15—It is possible for Illinois to have a garage lien law if the members of the Garage Owners Association of Illinois work for it. Certain sections of the state were inactive at the time the last bill failed of passage, asserted Robert Bland and C. F. Wiedmaier, of the legislative committee. Both men are former members of the legislature. Plans are being laid for the introduction of a new bill and a campaign for its passage. It would give the garageman a claim on cars on which money is owing to him. Such a bill was passed in Michigan over the veto of the governor. Secretary L. C. Steers of the Michigan association explained how that state put the measure through. He said the bill is now being tested in the courts and that it is expected that it will stand.

Easily Arranged Window Display of Tire Accessories



Tasteful arrangement and not too much in the window are two of the features of this display in the window of the Detroit salesroom of the Firestone Tire & Rubber Co.

The RETAIL NEWS

MIDDLE WEST

Fred Schubring, Wausau, Wis., is making plans for the erection of one of the largest garages in Wisconsin outside of Milwaukee. The building will be L-shaped, three stories high, 38 x 67 feet and 54 x 77 feet, with a full basement for repairshop, vulcanizing, etc. The first floor will be used for sales-rooms and storage, the second for dead storage, warehouse, etc., and the third for refinishing cars, painting, upholstering, etc. The building is to be ready about February 1.

R. Beck, St. Johns, Mich., has purchased the garage business of J. C. Hay.

Floyd Johnson, Mt. Pleasant, Mich., has moved into his new garage on Main street. He handles the Overland and Ford.

Lucas & Schoettle will open a garage on Maynard street, Ann Arbor, Mich.

The K-R Auto & Garage Co. has opened its place of business in Baldwin, Mich.

E. E. Hall has purchased the East Jordan Garage, in East Jordan, Mich.

Ben Van Arman has purchased the Homer Garage, Homer, Mich.

The Cadillac Automobile Co., Rockford, Ill., has been changed to the Keyt-Erb Automobile Co., of which F. P. Keyt is president, Clifford Erb, vice-president, and Walter Lamb, secretary and treasurer.

Moutier Bros., proprietors of the Crown Auto Co., of Peoria, Ill., which firm recently absorbed the Fashion Garage of that city, has taken the agency of the Woods electric for Peoria and Peoria county.

Frank Offer has organized the Auburn-Offer Automobile Co. and opened show rooms and a service station at 315 South Fourth street, Springfield, Ill.

The Indiana Garage, South Bend, has been opened at 515 Lincoln Way, west. The building, which has just been completed, is 52 x 75 feet. J. D. Whitlock is general manager and Joseph Boroczki will have charge of the mechanical department. It is intended to establish a taxicab service and to act as agent for the Oakland.

Charles H. Thuner has joined the St. Louis Overland branch and has charge of the sales of the Overland light delivery car.

The Burtless Motor Sales Co., distributor of Menominee trucks, Lansing, has opened a branch in Grand Rapids, Mich., which is temporarily located at 15 Graham street, with Geo. S. Thwing & Co.

The B. & F. Motor Sales Co., Kalamazoo, Mich., distributor for the Mitchell, has moved into new quarters in the McNair block, on South Burdick street.

The Colonial Automobile Co. has been formed in Indianapolis to handle the Crow-Elkhart. Fred P. Mertz is manager.

W. D. Boyce will build a garage at 514 Dearborn street, Chicago, at an estimated cost of \$30,000.

Charles Sprink will build a one-story garage, 50 x 140 feet, at Lake Benton, Minn., at a cost of \$9,000.

Henry Habighorst, St. Paul, Minn., will build a one-story commercial garage, 75 x 125 feet.

The Hayward Auto Co., Hayward, Wis., will build a garage at an estimated cost of \$3,000.

S. D. Thompson, Pabst building, Milwaukee, will build a two-story garage, 60 x 88 feet.

The F. D. Hubble Estate, Des Moines, will build a two-story garage at a cost of \$25,000.

Edward J. Malone and brother, Raymond, have purchased the Collingwood Garage, 439-441 West Delaware, Collingwood, O.

Earl Newman and Fred Riley have taken over the agency for the Overland in Battle Creek, Mich., and opened a garage on West Main street.

Ralph Clark has purchased an interest in the garage of Joseph Clark, Belleville, Mich. The business will be conducted hereafter under the style Belleville Garage.

Roberts & Woodcock is the name of a new firm in Standish, Mich., doing a garage and accessory business.

C. H. Hindley has disposed of his interest in the Huron Side Garage, Ypsilanti, Mich.

Baker & Son, who recently secured the agency for the Imperial for Kalamazoo, Mich., has opened a showroom and garage on North Burdick street.

Jones & Wheelock, Cheboygan, Mich., automobile and accessory dealer, will put up a new garage, 30 x 80 feet.

The Earnest Sumpton Automobile Accessory Shop, Kalamazoo, Mich., will have a new and larger place of business on East South street, the firm having outgrown its present quarters.

The Weller Auto Co., Bay City, Mich., is to have a new garage costing \$3,000 on Saginaw street.

J. R. Goldie, who had charge of the service repair work at the Chalmers Motor Co. for three years, has opened a garage at 111 Bagley avenue, Detroit.

Davis Estaque, Jacksonville, Ill., has disposed of his plant on West Court street to Basil Sorrells and H. E. Wheeler.

Fred W. Sauermaier has purchased the property at 1708-18 Fourth avenue, Rock Island, Ill., and will erect a new fireproof garage to cost \$20,000. The site is 115 x 150 feet. The building will be of brick, two stories in height.

John Elch and Son have purchased a building in Emington, Ill., and will convert it into a garage. They have secured the agency for the Ford and will handle accessories.

Matthew Beringer is erecting a garage at Batavia, Ill., to cost \$10,000. It will be on River street, near Wilson, and will be of brick and concrete, 40 x 80 feet.

Everhard & Measer have opened the garage de Luxe at Danville, Ill., at 219 West Main street. R. M. Everhard will look after the mechanical end and James H. Measer will take the sales and electrical department.

The Cott-McKelvey Co., 448 North High street, Columbus, O., has opened a service and repair department in conjunction with the Pullman and Jackson agencies.

C. R. Williams, Battle Creek, Mich., has opened an accessory store at 17 West Jackson street.

The Kentzler Bros. Co., 107 East Doty street, Madison, Wis., has awarded contracts for the conversion of its livery stables into a garage and repairshop. The building will

be fireproof, two- and three-story, 66 x 184 feet. The work will cost about \$7,500.

William R. Hodgson and Harry Crandall have opened an electric vehicle garage and service station in the McAvoy building, Saginaw, Mich.

Herman Struebing, North Ninth street, Sheboygan, Wis., has sold a half interest in his garage and repairshop business to Edward Roberts and the firm name has been changed to the Struebing-Roberts Motor Co.

Arthur F. Raab has purchased an interest in the Sheboygan Auto & Supply Co., Sheboygan, Wis., handling the Ford, Studebaker and Kissel, and will take charge of the Ford tractor business as soon as the machine is ready.

Fred M. Seaver, Lake Mills, Wis., is remodeling the Odd Fellows temple building into a garage and repairshop, to be ready for occupancy about December 1.

Wright & Robbins, Portage, Wis., have taken possession of their new garage and repairshop at 205-209 DeWitt street, Portage, which is designated the Ford Garage. The building is 65 x 90 feet and cost about \$7,500. A space 45 x 90 feet is afforded without obstruction by pillar or post.

William G. Snyder, who conducts a garage and salesroom on Van Buren street, Freeport, Ill., has purchased the business of the Auto Electrical Co. and has removed the equipment to his place.

MOUNTAIN

W. W. Beeson, Colorado and Wyoming distributor for the National, has opened permanent headquarters at 1616 Broadway, Denver.

E. J. Johnson, Chalmers distributor for Colorado and Wyoming, has completed an extensive remodeling of his salesroom at 1624 Broadway, Denver.

The Victor Auto Co.'s garage, Victor, Col., has been established as official Hupmobile service station, to work in connection with the Woods Auto Co., Hupmobile agent for the Victor district.

W. F. Bell has secured the Colorado and Wyoming territory for the Monarch and has established headquarters at 1616 Broadway.

R. C. Kautter has been appointed Hupmobile service representative at Haxtum, Col., where the selling agency is handled by G. W. Gordon.

W. A. Murphy has closed a contract covering the Colorado and Wyoming territory for the Detroit Package Wagon, and has opened temporary quarters at 1616 Broadway.

The Platt-Fawcett Motor Co., 1249 Broadway, Denver, Stearns, Paige and Mitchell distributor for Colorado and Wyoming, has dropped the Mitchell and is handling the other two exclusively.

EAST

The Marting Co., Ashland, W. Va., will build a two-story garage at 17th and Market streets.

C. T. Silver Motor Co., Yonkers, has moved to permanent quarters in the Silver building, North Broadway and Manor House square.

The Combs Motor Car Co. has completed a service station at 162 L street, N. W., Washington. Jeffery and National cars are handled.

Baker Bros., Geneva, N. Y., will build a two-story garage at an estimated cost of \$20,000.

The Thomas A. Stewart Co., 69 Pearl street, Hartford, Conn., has been appointed distributor of the Milburn electric in Hartford, Tolland, Litchfield and Middlesex coun-

\$421 in a Month

Page 6

ties. Temporary quarters have been secured in the Cole Service Station at 67 Mulberry street and later the company will be located in the remodeled Heublein garage.

J. Schwarzler, Bronx, N. Y., will build a five-story garage at 153rd street and Mott avenue at an estimated cost of \$20,000.

The Standard Oil Co. of N. Y., 50 Congress street, Boston, will build a garage at Pawtucket, R. I., at an estimated cost of \$10,000.

Joseph L. Lannin, 101 Tremont street, Boston, will build a one-story garage, 95 x 110 feet, at Jamaica Plain, Mass.

Wm. Dummer, Rowley, Mass., will build a one-story garage, 65 x 117 feet, at Newburyport, Mass., at an estimated cost of \$8,000.

J. F. Feaser will build a one-story garage, 50 x 85 feet, at Thompson and Evergreen streets, Harrisburg, Pa. The estimated cost is \$3,000.

Frank M. Johnson, who operates a garage on Elizabeth street, Mohawk, N. Y., will build a new garage on West Main street near the Ilion line. The garage will be 40 x 60 feet and two stories high.

The Buick Motor Co. has secured property at 1623-25 L street, Washington, D. C., which has been remodeled into a service station. The building contains about 14,000 square feet.

The Motor Car Accessory Co. has opened at 1201 North Charles street, Baltimore. H. C. Clark and Frank Hoddinott are at the head of the firm. A general line of accessories is being handled. The company also is distributor of the Newcastle tire.

The Firestone Tire & Rubber Co., Akron, O., will open a direct factory branch in Baltimore. Temporary quarters will be established at 17 and 19 East Mount Royal avenue, in an addition which has been constructed to the quarters of the Zell Motor Car Co. Building.

PACIFIC COAST

Lisher & Hynes have opened a storage battery sale and repair station at 1915 Broadway, Oakland, Cal.

Edward R. Bradley, 161 West Colorado street, Pasadena, Cal., will build a garage, 100 x 131 feet, at a cost of \$12,000.

The C. H. Hornburg Co. has moved into new quarters at 1421 Second avenue, Spokane. It will continue to handle the Regal.

The Oldsmobile Co., Spokane, has been incorporated for \$50,000. It is composed of G. K. Marsh, F. M. Marsh, Henry Madigan and R. L. Strickie, and will distribute the Oldsmobile in eastern Washington, except three counties south of the Snake river, and all of northern Idaho. Headquarters are at S122 Walnut street.

The Christensen Automobile Co., San Francisco, has been appointed distributor of the Empire in northern California.

Eugene Schuler Co., 742-46 Olive street, Los Angeles, has opened a factory branch, handling the Allen car in the southern territory.

The Studebaker Agency, Pasadena, Cal., has added a wing to its new building, which still is under construction. This will provide room for a garage which will front on two streets and have an entrance from a third. J. M. Harper is president of the company and L. S. Weeks manager.

SOUTH

The Florence Motor Co., Charleston, S. C., will build a one-story garage on East Houston street.

The Johnson Tire Co., Montgomery, Ala.,

has moved into new quarters at Moulton and Bibb streets. Goodyear tires are handled.

H. H. Fuller, Laurel, Miss., is erecting a brick garage.

The Bluegrass Motor Co., Carlisle, Ky., will equip an automobile repairshop. M. T. Rudell is in charge.

Robert R. Thomas has opened a garage at 593 Broad street, Augusta, Ga.

The American Tire Co. has opened a salesroom at 525 South Third street, Louisville, Ky. J. W. Royce is manager.

The Louisville Auto Top Co. has opened an office and shop at 304 West Breckenridge street, Louisville, Ky. The concern, of which R. P. Bottorff is the manager, will make a specialty of trimming.

The National Auto Sales Co. moved October 15 from 728 South Fourth street to 931 South Third street, the former location of the Louisville branch of the Ford Motor Co. Tires, accessories and used cars are handled and a general repair and garage business done.

The Ward Automobile Co., Natchez, Miss., has moved to larger quarters at 107 North Commerce street. The Overland is handled.

The Lake Charles Auto & Supply Co., Lake Charles, La., has leased a building on Broad street and will fit it up as a salesroom.

The Memphis Battery Service Station, Memphis, Tenn., is a new concern at 232 Monroe avenue. A general battery service business is done and the Exide battery is handled. Fred J. Wright is in charge.

SOUTHWEST

The Heskett Motor Co., Wichita, Herff-Brooks and Grant dealer, has leased a new building at 206 South Lawrence street.

The Independent Auto Co., Topeka, has opened a salesroom at 1212-18 West Eighth street. Regal, Lozier, Chandler and Marmon cars are handled.

The Strong-Roberts Auto Co., Houston, Buick dealer, has moved its salesroom from Main street to the new service station on San Jacinto, combining the two branches.

Oille E. Haupt, St. Louis, Ford dealer, has opened a salesroom at 4108 Olive street.

The Mission Garage, El Paso, has passed into the hands of W. R. Eldson, who has purchased the interests of G. D. Bent.

The Elliott-Garrett Co., Studebaker and National dealer, El Paso, has removed from East San Antonio street to the L. E. Buquor building on West San Antonio street.

Lee A. Patterson and Dixon Bros., Springfield, Mo., have formed a partnership and leased quarters for a garage at 310 Boonville street. The building, which was formerly a livery stable, will be remodeled into a garage of 46 x 200 feet. Dixon Bros. have heretofore conducted a garage on McDaniel avenue. Patterson will be manager.

J. F. Moore has opened the Roanoke Garage at 39th and Summitt streets, Springfield, Mo.

The Flak Rubber Co., St. Louis, has leased the southwest corner of Grand avenue and University street, where it will improve the present building preparatory to increasing its stock.

J. C. Hildreth has arranged for the erection of a brick and stone garage and Fourth and Lyons streets, Carthage, Mo. The garage will be 75 x 90 feet, one story high.

The Moon Motor Co., Springfield, Mo., has been organized by Bert Meyer and James Hutchison to handle the Moon. Offices are at 316-18 McDaniel avenue.

The Kansas City Motor Sales Co., Kansas City, Mo., has been incorporated and has established office and salesrooms at 1711

Grand avenue. The chief business will be the sale of Ford cars on deferred payments and the exchange of Ford cars in Kansas City and territory.

The G. L. Hudkins Automobile Co., Salina, Kan., has been incorporated with G. L. Hudkins as president. The capital is \$50,000. The business, which includes the sale of Ford, Jeffery and Dodge cars, has been operated by Hudkins for several years. The location on North Seventh street is unchanged.

The Lyons Auto Co., Lyons, Kan., has been taken over by Fred Long from its former owner, O. B. Johnson. Lert Wright will be manager.

NORTHWEST

Edward Rehder, formerly of the Rehder-Walters Co., Gladbrook, Ia., Ford and Buick dealer, has sold his interest in that company and is now handling the Cadillac in Fort Dodge under the name of the Rehder Cadillac Co.

Sherman & Reed have opened a repairshop and a garage at Broadway and Arizona street, Butte, Mont.

Wm. Kohlmeyer, Blue Earth, Minn., will build a one-story garage, 51 x 115 feet, at an estimated cost of \$7,000.

The Sperry Realty Co., St. Paul, Minn., has been issued a permit to build a garage at Temperance and Jackson streets, to cost \$27,500.

George B. Billings, La Crosse, Wis., has bought from J. E. Sperry, St. Paul, Minn., a garage at Dale street and Selby avenue.

W. H. Root, Morgan, Minn., is building a \$9,000 garage, 50 x 140 feet.

C. W. & W. H. Eckman, 533 South Front street, Mankato, Minn., are building a \$3,000 addition to their garage.

The Pondera Valley Auto Co., Conrad, Mont., is preparing to build a garage and machine shop.

A. Fokken and Ed Kruse, Raymond, S. D., have formed a partnership as Fokken & Kruse and will open a garage and repairshop.

The Belding Auto Co., Pierre, S. D., has bought the Gas Belt Garage from G. W. Lumley.

Sabers & Sessler, Salem, S. D., have dissolved, Sabers continuing the Reo and Dodge Bros. agencies and Sessler retaining the Buick agency.

E. Watkins, Crookston, Minn., has opened an automobile business to be called the Overland Garage.

Howard Egan and Anton Kreitinger have formed a partnership at Golya, N. D., and will open an automobile repairshop.

Frank Feldhaus, Howard, S. C., will erect a garage 25 x 140 feet.

The H. C. Bauer Estate, Lakefield, Minn., will erect a \$10,000 garage, 135 x 150 feet.

V. J. Kopolzynski, Ivanhoe, Minn., has bought the Carl Ingvaldson stock of accessories and will go into business with Joseph Kaczmarek.

M. W. Fox, Kenyon, Minn., is erecting a brick garage, two stories, 50 x 100 feet.

Alfred Knick, Brownston, Minn., has bought the Grove City Auto & Implement Co., Grove City, Minn.

The Brown-Foshler Co., Des Moines, Ia., has been organized and will handle the Enger and Pathfinder. The new company will be located at 1003 Locust street with the Maxwell Motor Car Co.

CANADA

E. W. Knight, Blenheim, Ont., will build a garage and repairshop at an estimated cost of \$12,000.

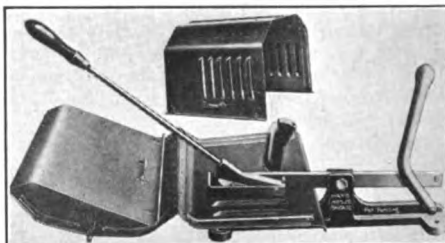


ACCESSORIES & SUPPLIES

MAYO LOUVRE CUTTER

Mayo Mfg. Co., 54-60 East 18th street, Chicago. PRICE, \$30.

For cutting ventilating openings in hoods that are not originally ventilated. The machine has a cutter, operated by a hand lever, which slits the side of the hood and at the same time presses the metal outward with the hooded effect usual in louvres. Cutters are of hardened steel and can be removed for sharpening. Cuts right and left sides. The makers state that a hood can be ventilated in about 15 minutes and that the cutter will not crack or mar the metal. The weight of the complete machine is 45 pounds.



Mayo louvre cutter and the work it does

to thoroughly warm the incoming gases and so ensure their proper vaporization. Special manifolds are made to fit most of the standard cars on the market and in no case is any machine or other fitting work required, the manifold fitting exactly in the place of the original.

MARVEL-MIST SPRAYER

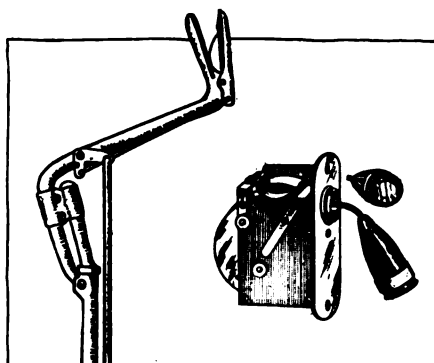
Marvel-Mist Mfg. Co., Brooklyn, N. Y. PRICE, small outfit with cloth, \$1; large, \$1.25; pint can for refilling sprayer, 75 cents; quart, \$1; ½-gallon, \$1.75; gallon, \$2.75; 5-gallon garage outfit, \$12.50.

A cleaning and polishing compound used in a sprayer, a light coating being sprayed on the body and rubbed off with clean cheese-cloth. The makers state that it prevents deterioration of the paint, leaves a surface that will not catch dust and removes oil, grease and road tar, softens mud and produces a high polish.

GROUT'S LEVER EXTENSION

B. F. Grout, Derby, Vt. PRICE, \$3.50. DEALERS, \$1.50.

An offset extension for the Ford brake lever which brings the handle 7 inches closer to the driver. The latch handle is carried along with the extension so that the brake is used in the same way as with the straight handle. Attachment is made by a clip and a single bolt and the work can be done in a few minutes without fitting or machine work. The device is of steel, finished in black enamel.

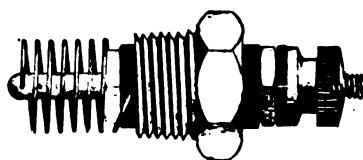


Left—Grout's lever extension. Right—Electric cigar lighter

ELECTRO GAS VAPORIZER

Suburban Lighting & Gas Engine Co., Summit and Lagrange streets, Toledo. PRICE, \$2.

A coil of resistance metal is screwed into the cylinder and is heated by an electric current, vaporizing the cold fuel with the object of making starting easy, especially in cold weather. A simple switch turns the current on and off. Current may be supplied from the starting battery or from a set of dry cells.

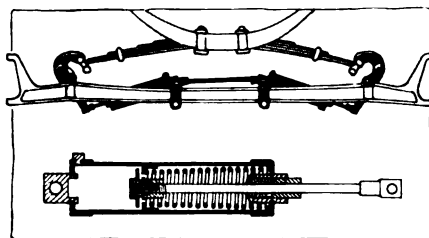


Electro vaporizer which warms gas

ELECTRIC CIGAR LIGHTER

Electric Automatic Cigar Lighter Co., 556 West 27th street, New York. PRICE, \$5.

An electric cigar lighter made to operate on voltages from 6 to 24. The flexible cable attached to the lighter reels up automatically inside a casing which may be had either for flush mounting, with the casing below the surface, or for outside mounting. The act of pulling out the cable switches on the current and when the cable is released and winds up the current is cut off. A lamp can be substituted for the lighter. The finish is black, nickel or brass, or special enamel to match car color.

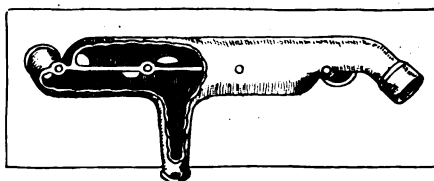


Jenney hydraulic shock absorber

JENNEY SHOCK ABSORBER

Jenney Shock Absorber Co., 535 North Capitol avenue, Indianapolis. PRICE, set of four, \$20.

This is a hydraulic shock absorber for Fords. A set comprises four cylinders, two for each spring, clipped to the axles and connected through levers to the spring ends. Each cylinder contains a helical spring, a piston and valve, and is filled with oil. When the riding springs are compressed the absorber springs also are compressed, the valves in the pistons opening and allowing free movement; but on the rebound the springs in the cylinders close the valves and the oil is forced to find its way through small openings, retarding the return stroke and preventing violent rebounds. Leakage at the piston rod is prevented by a stuffing box. The makers state that the installation of a complete set requires about two hours.



Wilmo gas-heating one-piece manifold

WILMO MANIFOLD

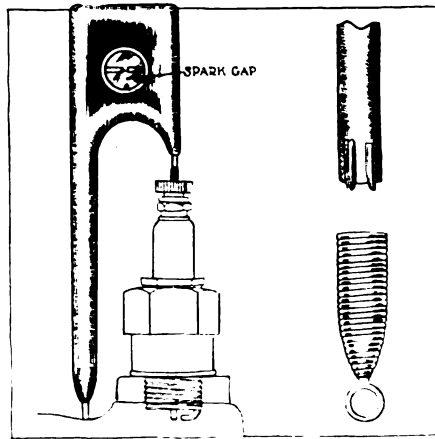
Wilmo Co., 1260-1264 Continental & Commercial National Bank building, Chicago. PRICE, standard model, \$10; Ford model, \$7.50.

A manifold is made which takes both intake and exhaust gases, the two being separated by partitions. The object is

ROYAL PLUG TESTER

Royal Tester Co., 122 Anderson street, Pittsburgh, Pa. PRICE, \$1. DEALERS, \$2.40 for six testers mounted on show card.

The Royal tester is made of an insulating composition and a brass wire runs through it, one end being exposed for application to the plug and the other end exposed for application to the cylinder. A spark gap is placed in the body of the tester with a mica window on each side. The device is small and light. The insulation eliminates the possibility of a shock being received from the wire.

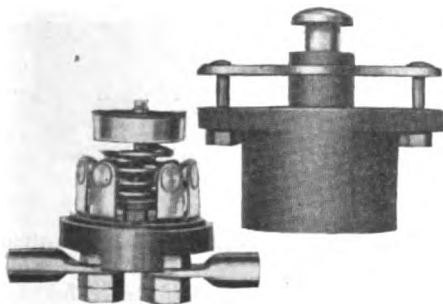


Left—Royal plug tester. Right—Climax spring terminal for cables

MUTUAL FOOT SWITCH

Mutual Electric & Machine Co., Wheeling, W. Va.

This switch is designed to complete the circuit between the battery and starting motor when the foot button is depressed; it contains no resistance. Each terminal is connected with four vandam bronze finger springs and each spring carries a solid copper contact button; the eight contacts are arranged in a ring. A central cone of copper is forced into the circle by the foot button and takes current from one set of contacts and delivers it to the other. The cone is mounted so that it can turn freely; in use it gradually works around so that the wear is distributed around its sur-



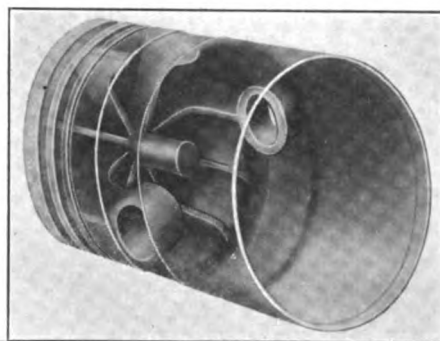
Mutual plain starting switch

face. By removing two screws the inside of the switch can be removed and inspected without disturbing any permanent adjustments. No adjusting is needed.

MAGNALITE PISTON RIBBING

Walker M. Levett Co., 10th avenue and 36th street, New York.

The new method recently adopted for imparting extra strength to Magnalite pistons is shown in the accompanying illustration. The ribbing is so laid out as to provide for stresses in every direction and at the same time it provides additional surface for the radiation of heat. These pistons, which are of a special aluminum alloy, are of extreme lightness. The makers state that they can be furnished for any gasoline motor built.



Ribbing system in Magnalite pistons

CLIMAX SPRING TERMINAL

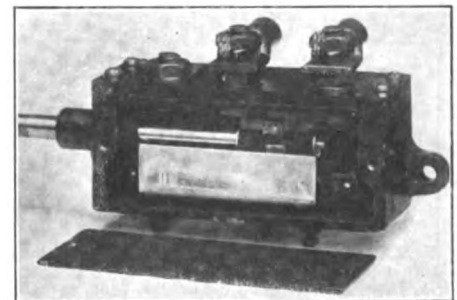
Climax Motor Devices Co., 759 Rose building, Cleveland. DEALERS' PRICE, \$1.75 per thousand.

Spring steel wire is coiled into the form of a tapered tube with a loop for the spark plug terminal at the small end and the other end is left open. The insulation of the cable is stripped off for about $\frac{5}{8}$ inch and the stranded wires separated and folded back on the cable, which is then inserted in the open end of the terminal with a twisting motion. This provides contact but does not place any strain on the wire of the cable. The makers state that it is impossible for the terminal to work off. Various sizes are made for cable of all outside diameters.

MUTUAL STARTING SWITCH

Mutual Electric & Machine Co., Wheeling, W. Va.

This is a starting switch of the plunger type which is designed to pass the current to the starting motor in a particular way when the plunger is operated. At first just sufficient current is sent to the motor to start the armature turning; secondly, the current is cut off long



Mutual regulating starting switch

enough to allow the pinion time to mesh with the gear; and thirdly, the full current is turned on for the actual starting of the engine. This is all done at one stroke of the plunger. The throw of the switch is short— $1\frac{1}{8}$ inches—the mechanical action is smooth and easy, the parts heavy and durable and the working parts are surrounded by a thick wall of a composition which resists both heat and electricity. The switch can be mounted on top of the electric motor or in any other desirable location. Contacts are of pure copper, very heavy and readily accessible. The makers state that the most important feature of the switch is its extremely low millivolt drop when carrying heavy currents; the drop on 160 amperes is given as 15 millivolts.

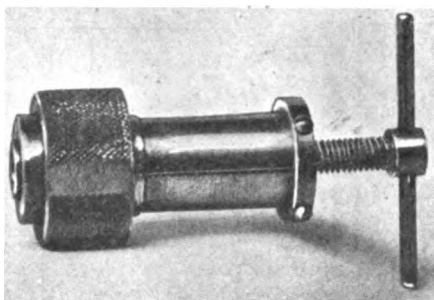
\$421 in a Month

Page 6

CAMPBELL BEARING PULLER

Campbell Auto Works, Stockton, Cal. PRICE, \$10.

For pulling magneto, generator and other small bearings this tool has jaws which are expanded by drawing back a large knurled ring so that they can be slipped over the bearing and tightened by pushing the ring forward until it is tight. The actual pulling of the bearing is then done by turning the handle of the screw to the right. The tool is of steel and is self-contained.

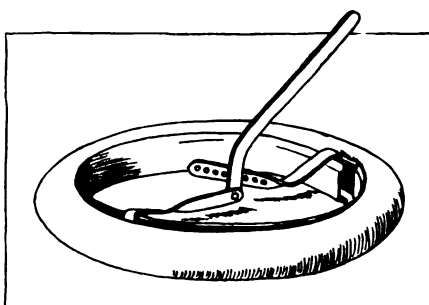


Campbell puller for small bearings

FEDERAL HANDY TIRE TOOL

Federal Sales Co., 116-118 East Jefferson Boulevard, South Bend, Ind. PRICE, \$2. DEALERS, \$1.50.

This is a special tool for removing and replacing split demountable rims and has ample leverage for doing the work without difficulty. The tool folds into a small compass for stowing in the tool box.

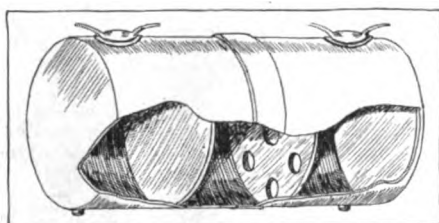


Federal handy tool for split rims

JASCO TANK IMPROVEMENTS

Janney, Steinmetz & Co., Philadelphia and New York.

Several new features have been incorporated in the seamless drawn steel tanks manufactured by this concern. A rect-



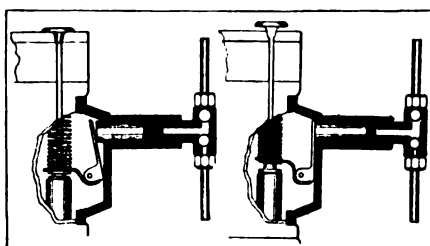
Jasco partitioned tank for fast cars

angular tank has been added to the stock and may be had with rounded or concave ends; a special square Packard tank is supplied, 12 x 14 x 32, holding 21 gallons and ready for installation, having all fittings. The price is \$20, or, with gasoline gauge, \$23. A cylindrical tank is built for roadster, speedster or racing cars with a separate compartment in one end for oil and a splash partition in the middle of the gasoline compartment; these tanks are made in 14, 16, 18, 20 and 24-inch diameters and any length.

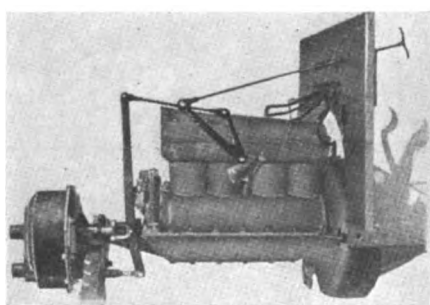
STRONG OIL PUMP FOR FORDS

Perkins Mfg. Co., Des Moines, Ia. PRICE, \$5. DEALERS, single lots, 25 per cent; lots of 6, 30 per cent; lots of 12, 33 1/3 per cent.

A plate carrying a small plunger pump is made to fit over the valve stem compartment of the Ford motor, in place of the regular cover plate. The pump is actuated by a rocker arm, one end of which is in contact with one of the valve



Strong plunger oil pump for Fords



Cleveland spring starter for Fords

lifters; the lifter raises the arm and pushes the plunger outward, discharging the oil in the barrel, and on the return stroke the plunger is brought back by a spring and sucks in a fresh charge. The oil is pumped from the bottom of the flywheel housing through a sight feed on the dash and forward to the timing gear housing from which it goes into the crankcase under the connecting rods and is splashed. The makers state that the pump can be installed in 20 minutes.

CUTLER-HAMMER GROUNDING SWITCH

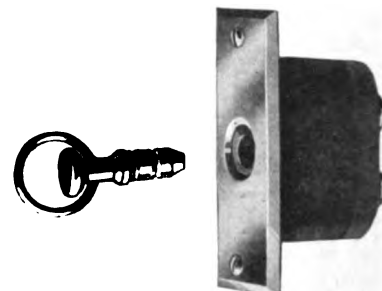
Cutler-Hammer Mfg. Co., Milwaukee. PRICE, 76 cents. DEALERS, single orders, 30, 10 and 10 per cent.

A switch installed anywhere designed to ground the magneto circuit and so prevent the operation of the car until the ground is removed. The ground is established by pulling out a plug, which is small and may be carried on a key-ring when not in the switch.

TIRE TESTING TANK

Trenton Potteries Co., Trenton, N. J.

This tank, for making under-water tests of tires, is of highly glazed porcelain, the white surface making it easy to



Cutler-Hammer magneto grounding switch

see the smallest air bubbles. The tank will take the largest tube; it stands 30 inches from the floor; width inside, 8 inches; inside depth, 15 inches; inside length, 32 inches; length outside, 36 inches. The outlet connection for drainage is 1 1/2 inch. The tank may be filled with a hose.

CLEVELAND FORD STARTER

Forest City Electric Co., Cleveland, O. PRICE, \$45.

A coiled spring of flat steel supplies the energy for starting, the spring being wound automatically by the motor as soon as it starts under its own power; the winding takes about 30 seconds and ceases automatically when the spring is at the proper tension. A trigger on the dash releases the starter when the motor is to be cranked. The spring is 2 1/2 in. in width and 12 feet long. The device is enclosed in a casing at the front of the car.

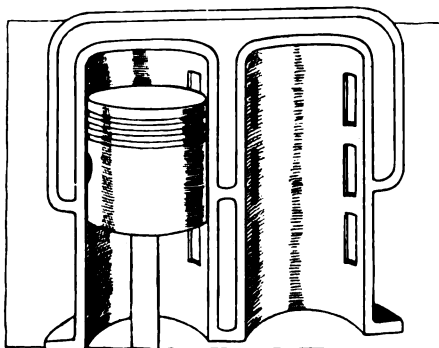
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** Road Man

Delicate Rod Test

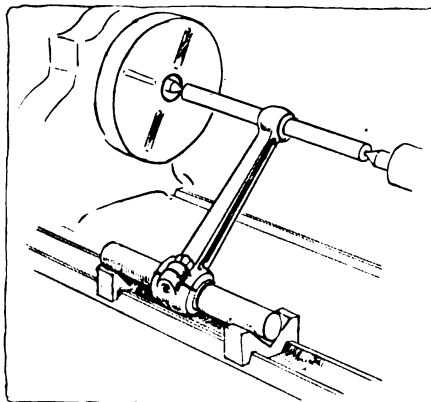
(No. 281)

Where many motors of one size are overhauled, and the cylinders are not integral with the crankcase, a pair of cylinders split in two may be used to determine the trueness of the connecting rod bearings. After the cylinders are split the waterjackets are closed up by placing a thin sheet of metal, cut to shape, over them. Slots are then cut as indicated and electric lights are placed at the rear to illuminate these slots. This device is placed on the crankcase and two adjacent pistons are tested, one at a time. If there is any twist or bend in the connecting rod it will be indicated by a leakage of light at one side or the other, but if everything is all right, all light will be excluded. This is a particularly delicate test because it is possible to see a very thin shaft of light without any difficulty.—Wm. McIlvrid, Colt-Stratton Co., Cole and Dodge, New York.



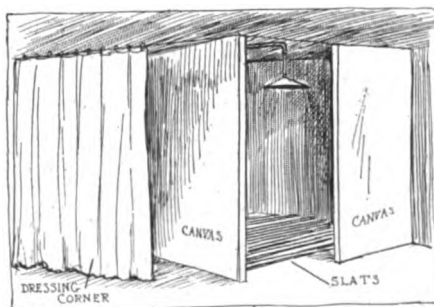
(No. 281)

Split cylinder for testing connecting rods



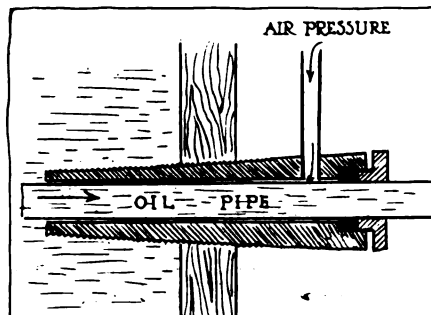
(No. 282)

Testing connecting rod in lathe



(No. 283)

Inexpensive type of shower bath



(No. 284)

Bung plug for transferring oil

rel, and the packing gland which makes a tight joint between it and the delivery tube is screwed down tight. A flexible metal tube $\frac{3}{4}$ inch in diameter runs from the end of the delivery pipe to the oil storage tank.

A better idea is to have the flexible pipe connect with a common pipe which runs to all the tanks and have branches, provided with valves, running to each tank. To fill any given tank it is merely necessary to open the desired valve.—August Lipp, Flatbush Avenue Garage, Brooklyn, N. Y.

Lathe Test for Rods

(No. 282)

There are many ways to determine whether the connecting rod bearings at top and bottom are true and parallel, and one of the simplest involves the use of a lathe and two mandrels. A mandrel is inserted in each end of the rod, and then one of the mandrels is placed between the centers of a lathe and the other end of the rod is allowed to swing over until it comes close to the ways of the lathe and a small block is placed under it to support it in this position. Then a V-block is carefully made; it slides on the ways and has the surfaces of its V's cut so that one side is perpendicular and the other parallel to the axis of the connecting rod. The V-block is placed at one end of the mandrel and the distance measured with a caliper; then the block is placed at the other end and the distance is measured on this side; if the two do not correspond the two bearings are not parallel. Likewise, measuring distances on each side will show whether the connecting rod is twisted. Naturally a different block will be needed for long rods than for short ones, since a change in the length of the rod will also change the angle which it makes, and therefore the angles of the V surfaces, but two or three blocks of different sizes should be enough for all rods, from the largest down to the smallest.—P. J. Durham, New York.

Keeping Door Closed

(No. 285)

In winter, when the front door of the garage must be kept closed, many steps are saved between shop and front door by having an endless rope running from the door to the garage so that it can be opened or closed from the shop. It should not be a difficult matter to lead the rope so that it will be convenient but still out of the way.—Smith & Schumann, Fostoria, O.

\$421 in a Month

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Association News

DELEGATES VISIT PEORIA

PEORIA, ILL., October 15—A feature of future garage conventions, especially in the middle west, is likely to be the attendance of visiting delegations from other states. The first visit was made this week when a Michigan delegation came to Peoria following the close of the Michigan convention in Grand Rapids Thursday night. The delegation was made up of Secretary L. C. Steers of the Michigan association, Mr. and Mrs. L. S. Currier, Detroit; C. E. Swain, Detroit, and Miss Kate Gunnell, recording secretary of the Michigan convention. Miss Gunnell also recorded the Peoria convention for the purpose of reporting it to the Michigan organization. The visit of the Michigan party was made an event.

BIG ASSOCIATION WORK

GRAND RAPIDS, October 15—One of the features of the convention last week of the Garage Owners Association of Michigan was the report of Secretary L. C. Steers, who stated that since the association was formed last summer he had mailed out 14,800 pieces of mail. This represents a monumental work as compared with other association secretarial achievements. Much of this was letters to garagemen, asking their co-operation in organization work. He is also chairman of the Purchasing Committee and has arranged several purchases which effect savings to members of from 5 to 25 per cent. On coal buying members have been saved from \$20 to \$100 on individual orders. Sponges, chamois, greases and soaps have been tested and investigated and reliable articles adopted for use by members. These are secured at a saving. Much of the saving is effected through quantity contracts.

I. A. B. A. ELECTS OFFICERS

DES MOINES, October 9—At the annual meeting of the Iowa Automobile Business Association, J. C. Bernhard, of the Bernhard & Turner Auto Co., was elected president, other officers elected being as follows: Vice-president, H. L. Carr, Diamond Tire & Supply Co.; treasurer, A. R. Rockwell, Herring Motor Co.; secretary, N. T. Miller. E. C. Rafensperger, Des Moines-Buick Auto Co., former president of the association, and W. B. Jeffery, Jeffery Automobile Tire Co., were elected directors. The meeting was well attended, there being about 50 members present, and at the roll call each was requested to outline briefly the benefits he had derived from the association during the past year. Four new

members were added to the association as follows: International Oil Co., Standard Tire Repair Co., Gabriel Snubber Co. of Iowa, and the Direct Sales Co.

SYRACUSE DEALERS' SHOW

SYRACUSE, October 15—The Syracuse Automobile Dealers Association held a meeting October 5 to set the ball rolling for the 1916 show, which will probably be held the latter part of February. The most important business transacted was the selection of directors, all of whom were re-elected. They are J. W. Lee, Jr., president of the Overland-Syracuse Co.; George H. Norris, of the Genesee Motor Car Co., distributor of Cadillacs; T. A. Young, of Bull & Young, Franklin dealer; S. Silverman, Jr., of Silverman & Grody, Paige, Chevrolet and Saxon dealer; W. R. Shaw, Chandler and Oldsmobile dealer; T. G. Meacham, of the Palmer-Moore Motor Truck Co., and B. W. Moyer, of the H. A. Moyer Co.

FORT DODGE SHOW

FORT DODGE, IA., October 16—Secretary G. W. Tremain reports that at the last meeting of the Fort Dodge Automobile Dealers Association it was definitely decided to hold the annual show in the Terminal building, February 29 to March 4.

BALTIMORE DISCUSSES SHOW

BALTIMORE, October 16—The Board of Directors of the Baltimore Automobile Dealers Association met on Wednesday and discussed preliminary plans for the coming automobile show, which will be held in January. A committee to nominate officers for the ensuing year was named and includes A. M. Eastwick, Jr., chairman; T. W. Wilson, Jr., E. H. Habersham, J. A. Rice and Lyman Bryan. Following the annual meeting, November 10, General Manager H. M. Luzius will announce the committee to cooperate with the A. C. of Maryland to stage the show.

HARTFORD'S JANUARY SHOW

HARTFORD, CONN., October 18—The matter of an early show was the big topic of discussion at the meeting of the Hartford Automobile Dealers Association last week. There was a tie vote which was finally broken by the president of the association in favor of a later show. Hartford shows have always been held in February or early in March. The 1916 Hartford show will probably be held the latter part of January, although the exact time and the place are yet to be decided. Ben F. Smith, who successfully managed the

show of 1915, will again officiate in this capacity. There are but three members on the show committee this season, Ben F. Smith, manager; John D. Evans, treasurer, and Russell P. Taber.

ACTIVITY IN PORTLAND

PORTLAND, ORE., October 18—The Portland Automobile Trade Association is to be born anew as an organization of automobile dealers. Such was the edict passed at the first meeting of the association since the summer recess. At that time, W. J. Roope, president, and George Johnson, vice-president, handed in their resignations to take effect immediately. During recent months accessory and garagemen have come to be more active in the affairs of the association than the automobile dealers themselves. The dealers admit that this situation is traceable to faults of their own. A reorganization committee has been named, consisting of Frank C. Riggs, C. M. Menzies, H. L. Keats, Ed Johnson and George Johnson, which will hand in a report during the coming week. The tire men of Portland have an active trade organization known as the Rubber Club, and the garage and repairmen have an organization of their own. The general plan is to allow each of these organizations, which occupies a field distinct in itself, to paddle its own canoe, yet to keep the allied interests close together by forming a general automobile trade association.

RILEY HEADS K. C. DEALERS

KANSAS CITY, October 15—Nelson S. Riley, manager of the Studebaker branch in this city, has been elected president of the Kansas City Motor Car Dealers Association. W. J. Brace is vice-president and E. E. Peake secretary-treasurer. It has been decided by the dealers to hold the annual automobile show in Convention Hall, February 7 to 12. Passenger and commercial cars, both gasoline and electric, are to be shown.

56-INCH TREADS FOR SOUTH

NEW YORK, October 18—At the meeting of the board of directors of the National Automobile Chamber of Commerce, Inc., last week, it was decided to standardize the treads of motor vehicles at 56 inch after July 31, 1916.

Regarding the deliberations leading up to the adoption of the 56-inch tread, the committee on treads met in Detroit not long ago and prepared its recommendations. The trade had been broadly canvassed with the idea of securing the viewpoints of the manufacturers and the result was that it was decided to drop the practice of making 60-inch tread for the southern trade. It was discovered that only in a very few sections of the country were the roads in such a condition that the 56-inch tread offered any difficulty.

St. Louis Stages Its Best Show

More Exhibits, Greater Attendance and Larger Sales Than Ever Before—Enthusiastic for Fall Exhibit

ST. LOUIS, MO., October 14—Three things made the show of the St. Louis Automobile Manufacturers and Dealers Association last week more successful than any previous exhibition of the kind in St. Louis:

1—There were more and larger exhibits than ever before.

2—There was a larger and more desirable attendance than ever before.

3—More cars were sold and more promising prospects obtained than ever before.

Fully 100,000 persons saw at this show the first display of 1916 models west of the Mississippi river. Probably a fourth of that number were sub-dealers, farmers and other out-of-town prospects brought to the city by the fall festivities, including the St. Louis fair, the Veiled Prophet parade and ball, the convention of the American Association of Farm Mortgage Bankers, and sundry other minor affairs.

Show Held in a Park

So great was the paid attendance that it is the belief of officers of the association that when the report of the show committee is filed it will recommend a refund of perhaps 100 per cent to all exhibitors who are members of the organization. Last year the committee refunded 60 per cent of the cost of display space to the member exhibitors.

Taking up in succession the three points which assured the show's success, the matter of space is first. The show, an al fresco affair, was held at Forest Park Highlands, the most popular summer garden in the city. The Highlands overlook Forest Park, one of the largest city parks in the country, and the show was accessible to street car and automobile only after a ride through the park.

The amount of space available was 35,800 square feet; the amount applied for was 43,800 square feet. To satisfy everybody the show committee a few days before the show had to reapportion the space and even to spread over parts of the Highlands which they had not intended to use for display purposes. Each of the applicants specified his first, second and third choice for space, and nearly every one obtained all of the three choices.

Space for pleasure cars and accessories was 40 cents per square foot. These were shown under roofs, in the 280-foot pavilion leading to the theater; in the theater proper, including the stage, and in another pavilion leading from pavilion at right angles to that leading to

the main entrance. The exhibits ranged in space from 315 square feet to 880 square feet, 18 of them being 345 square feet, the latter costing \$138 each. Many exhibitors bought three 411-foot plots at an aggregate cost of \$493 to each exhibitor. The stage of the theater was sold to the Westcott dealer, the largest bidder in excess of 40 cents a square foot, but the price was not made public.

Worked Hard for Attendance

Watchmen, janitors, secret service men, signs and decorations were furnished by the association gratis. Signs, souvenirs and decorations other than those provided by the association were restricted by a rigid contract which each exhibitor signed.

As regards attendance: In the first place the association, months before the show, engaged a press agent, who gradually but with increasing intensity aroused public interest in the show. Secondly, the show committee mailed broadcast to business men and society folks a formal invitation with several free tickets of admission good only for Monday night, the opening night. Tuesday was "Automobile Trade Day," and a large percent of the small town agents came in and brought prospects with them to see the new models and meet the

"big bosses." Friday night was given over to "Society," and even the most fastidious cars certainly had competition in the matter of attracting the eyes of the lovers of beauty. On this night the exhibitors gave fresh cut flowers to the ladies and advertising souvenirs to the children. Many a car was sold or contracted for through a sweet-scented rose and the gallantry of a salesman.

Sold a Funeral Procession

Point No. 3 was Sales. Every pet idea of the various sales managers was tried out at this show. Every distributor had the greater part of his selling staff at the show. Great attention was given to the woman prospect. Many salesmen took greater pains in explaining the car to a woman than to her escort. "The woman has the last word in buying a family automobile," said one dealer.

Tuesday, "Automobile Trade Day," was the most productive of sales. One of the biggest deals closed on this day was the sale by the Weber Implement & Auto Co. of a hearse and a squad of five sedans to an undertaker of Springfield, Ill. The new Chevrolet Co. of Missouri announced they had taken 272 orders for their Four-Ninety at the show. Several other distributors claimed they had obtained contracts for carload orders of their lines.

Joseph A. Schlecht, Allan, Jackson and Halladay distributor, treasurer of the Manufacturers and Dealers Association and chairman of the show committee, said:

"We had a greater attendance than any year before. Sales were made every day

By way of ensuring a good attendance on opening night, the St. Louis Manufacturers and Dealers Association sent out thousands of these special invitations. With each went several tickets good only on opening night

**The St. Louis Automobile
Manufacturers' and Dealers' Association**

Has the Honor to Invite You to Attend Its

Open Air

Ninth Annual Automobile Show

at

Forest Park Highlands

on

Opening Night

Monday Evening, October 4, 1915

SHOW COMMITTEE

<p><small>JOS. A. SCHLECHT, CHAIRMAN</small></p> <p><small>SAM L. BREADON H. B. KRENNING J. D. PERRY LEWIS</small></p>	<p><small>W. K. NORRIS JOHN M. PHILLIPS MILTON B. STRAUSS</small></p> <p><small>W. O. HARDIN, MANAGER</small></p>
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INVITATION NOT GOOD FOR ADMISSION CARDS OF ADMISSION ENCLOSED

by every dealer. Even the electric vehicle men sold more machines than at previous shows."

About 50 per cent of the attendance represented paid admissions. Tickets of admission were sold to members of the association at 15 cents each and only those tickets actually used were paid for. Admission at the gate sold for 25 cents.

The democratic spirit which tended to make the affair a social success as well as a financial one is well illustrated by the fact that the low-priced Ford was exhibited directly across the aisle and almost within arm's reach of the Locomobile landaulet at \$6,300, the highest-priced car at the show.

Fall Shows Successful

What some of the dealers said of the fall show idea follows:

J. G. McNiece (Cadillac manager at St. Louis): "The fall is the best time for an automobile show for everyone concerned. The St. Louis show demonstrates that. In the fall the prospect has time to look at a car, and the dealer has time to show him the car. It is not so early in the year as to make the prospect hesitate for fear that an improved model may be turned out soon after his purchase, and it is not so late as to make him feel that he has missed part of the season and would do better to wait until the beginning of the next season. Furthermore, the fall gives every dealer a chance to display his next year's model and to show closed cars.

James E. Newell (Haynes distributor): "The good effects of a fall show are just beginning to manifest themselves as far as my business is concerned. During the last week we have had an average of 28 real prospective buyers in our salesroom, all the result of the St. Louis show. Our fall shows are wonderful successes."

Farmer Has Money in Fall

E. L. Flanigan (Velle factory representative): "I believe in the fall show. During the fall the farmer, who represents a large per cent of the automobile buyers of today, has more time and money and is in better humor than at any other time of the year. In the fall his crop is on the market and the money in his pocket or the bank. He pays cash."

The exhibitors follow:

PLEASURE CARS

Brinkman Motor Car Co.—National, Maxwell, King.

Cadillac Automobile Co. of St. Louis—Cadillac.

Cartwright Motor Car Co.—Milburn Electric.

J. I. Case T. M. Co.—Case.

Cole-Arbogast Automobile Co.—Cole.

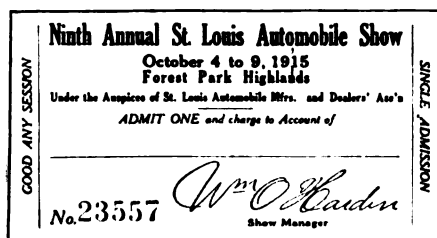
Colonial Motor Car Co.—Kissel.

De Luxe Automobile Co.—Oldsmobile, Metz, Crow.

Detroit Electric Car Co. of Missouri—Detroit Electric.

Dorris Motor Car Co.—Dorris.
Ford Motor Co.—Ford.
Franklin Automobile Co.—Franklin.
Stevens-Waverly Automobile Co.—Waverly Electric.
Tate-Gillham Motor Car Co.—Dodge.
Trenton Motor Car Co.—Regal, Mercer.
Velle Automobile Co. of St. Louis—Velle.

ST. LOUIS SHOW TICKETS



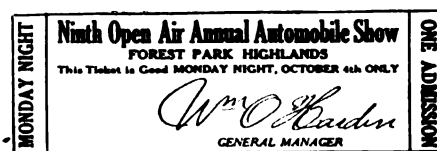
Regular admission ticket sold to association members at 15 cents. Only those taken in at gate had to be paid for by the dealers



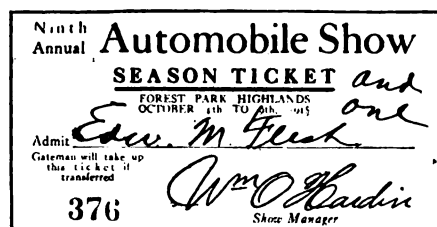
The press ticket was distributed gratis to representatives of the local newspapers



A button accompanied this special exhibitors' ticket given free to members making exhibits. Both had to be shown at once



With each invitation there was enclosed a number of free admission tickets good only on opening night



To certain persons, as officers of the association, and others who in the discretion of the association were entitled to them, season tickets good for the entire show were given gratis

Von Arx Automobile Co.—Winton.
Weber Implement & Automobile Co.—Mitchell, Hupmobile.
Weber Motor Car Co.—Studebaker.
Westcott Motor Sales Co.—Westcott.
Western Automobile Co.—Pierce-Arrow.
Meyer Motor Car Co.—Apperson.
Mogul-Vulcan Sales Co.—Herff-Brooks.
Moon Motor Car Co.—Moon.
More Automobile Co.—Marmon.
Motor Car Sales Co.—Peerless.
Mound City Buggy & Auto Co.—Allen, Jackson, Halladay.
Newell Motor Car Co.—Haynes.
White Co.—White.
Woods Electric Vehicle Co.—Woods Electric.
Capen Motor Car Co.—Garford.
Frye Motor Car Co.—Paige, Saxon.
Russell E. Gardner—Chevrolet Four-Ninety.
Grand Motor Car Co.—Auburn.
Hudson-Phillips Motor Car Co.—Hudson.
Ideal Motor Sales Co.—Pullman.
Jeffery Motor Sales Co.—Jeffery, Imperial, Marlon.
Johnson Automobile Co.—Empire, Hollier Eight.
Kardell Motor Car Co.—Reo.
Leach, Brouster & Co.—Baker Electric, R. & L. Electric.
Lewis Automobile Co.—Chandler.
Locomobile Co. of Missouri, Inc.—Locomobile.
Locust Motor Sales Co.—Scripps-Booth.
Moon Buggy Co.—Moon.
Overland Automobile Co.—Overland.
Park Automobile Co.—Chalmers.
Stearns-Knight Automobile Co.—Stearns.
Igo Motor Co.—Studebaker.

MOTOR TRUCKS

Borby Supply Co.—Little Giant.
Brinkman Motor Car Co.—Mack, Saurer.
Southwest Motor Co.—Grant.
Sperrang-Oakland Co.—Oakland.
International Harvester Co.—I. H. C.
Locomobile Co. of Missouri, Inc.—Locomobile.
Meyer Motor Car Co.—Diamond, Mais.
Mogul Vulcan Sales Co.—Mogul.
More Automobile Co.—Vim.
Overland Automobile Co.—Overland.
Republic Truck Co.—Republic.
Velle Automobile Co. of St. Louis—Velle.
Western Automobile Co.—Pierce-Arrow.
White Co.—White.

ACCESSORIES

Auto Devices Co.
Commercial Auto Body Co.
Ever-Tight Piston Ring Co.
Famous-Barr Dry Goods Co.
Gas Engine Efficiency Co.
O. K. Harry Steel Co.
Other Signal Device Co.
Panama Rubber & Equipment Co.
Pull-U-Out Mfg. Co.
Tower Grove Tire & Vulcanizing Co.
Wesco Supply Co.

Price Cutting Demoralizing

Editor Motor World:

We believe that manufacturers should refuse to sell cut-price houses, as the latter always demoralize the field and practically ruin the sale of any standard article that they get hold of.

We are glad to see that you are conducting a campaign to correct this trade abuse and wish you success in it.

Interstate Electric Co.,

Fernand K. Levy, Sales Mgr.
New Orleans, Oct. 4.

Tests of Cadillac Eight Are Confirmed by A. C. A.

Averages of 69.5, 71 and 72.5 Miles per Hour Made on Chicago and Indianapolis Tracks—20.6 Miles per Gallon

NEW YORK, October 18—The Technical Committee of the Automobile Club of America has just issued the report on the completed tests of two type 53 Cadillac eight-cylinder seven-passenger cars. Runs for maximum speed were made on the Chicago Speedway, September 21, and at Indianapolis, October 5. There were four runs; first with the top and windshield up, second, with the top and windshield down, in both of which cases the car was driven by Philip Robertson; the third run was with the top and windshield down, as in the second, but with W. J. Davidson driving. The fourth run was with the windshield and top up, as in the first run, with Sidney D. Waldon driving.

In the first run, 70 miles was covered in 1:00:25.4. This is an average speed of 69.51 m. p. h. On the second run, 72 miles was covered in 1:00:47.4, an average of 71.06 m. p. h. On the third run, 100 miles was covered in 1:22:46, an average speed of 72.49 m. p. h., and on the fourth run, to determine the miles per gallon of gasoline, at the ordinary touring speed of 14.5 m. p. h. the consumption was 20.6 miles per gallon.

Both cars used were equipped with stock motors, $3\frac{1}{2} \times 5\frac{1}{2}$, eight-cylinder V. The gear ratio was 4 to 1 and the tires used $36 \times 4\frac{1}{2}$ Goodrich Silvertown with Rudge Whitworth wheels. Both cars had seven-passenger bodies and carried extra wheels. The fuel gave a Beaume reading of 60 at 60 deg. F. At the high speeds of 71 and 69 m. p. h. the oil consumptions were 114 and 173.7 miles per gallon. On the fuel economy test—the miles per gallon oil were 67.5. Both cars were equipped with Hartford shock absorbers and were standard stock models in every way except that the muffler plugs were removed during the Chicago tests for speed but not during the gasoline consumption tests.

Overland Sells Well in Kansas

KANSAS CITY, MO., October 14—The Overland Automobile Co., according to Manager S. W. Ramsey, has averaged a sale of one car a day at the salesroom in this city since the first of June. The new \$750 car is going particularly well. Ramsey is authority for the statement that his company sold 3,128 cars from July 1, 1914, to July 1, 1915, from the Kansas City office. Its territory covers Kansas and western Missouri. Normally the proportion of sales as be-

tween the two states is 40 for Missouri to every 60 for Kansas, but just now Kansas is getting double the number of cars that Missouri is getting.

BOSTON PLACES BAN ON CURBSIDE PUMPS

BOSTON, October 18—Mayor James M. Curley of Boston has just sent an order to the Street and the Park and Recreation Commissions not to grant any more permits for sidewalk gasoline stands. He says in his letter that no such stands should be operated without a fee, and that as they are an obstruction to traffic care should be taken not to allow any more to be put up. Furthermore, fees should be charged for those now in use as a rental.

Gas Up To 23 Cents in New York

NEW YORK, October 18—The price of Standard Oil gasoline has been raised to 23 cents a gallon retail. This is the third advance in the last three days. Refiners on Thursday sent out notice of an advance in the wholesale price of 17 cents per gallon, making the fourth advance in price in the past three months. Retailers were selling at 21 cents on Thursday. On Friday the price went up to 22 cents, and on Saturday still another cent.

Gas Up 2 Cents in Portland

PORTLAND, ORE., October 18—Within the past fortnight the price of gasoline in Portland and Multnomah county has advanced 2 cents and the indications are that the end is not in sight. Some of the wisest heads are now declaring that the price will ascend gradually until a retail figure of 18 to 20 cents is reached. Until two weeks ago gasoline was wholesaling at $9\frac{1}{2}$ cents in Portland. Some dealers were then retailing at 10 cents, while the filling stations operated by the wholesale companies (Standard, Shell and Union) were commanding a retail price of 2 cents in advance of the wholesale figure. Last week orders came for another 1 cent increase, making the wholesale price $11\frac{1}{2}$ cents. The retail prices now vary from 12 cents to 14 cents.

Maxwell Time-Payment Plan

KANSAS CITY, MO., October 14—The Maxwell agency has adopted a time-payment plan of considerable flexibility. No specific amount is fixed for down payment and limit of time indicated for extended payments, but these are left to be governed by the character, record and general credit of the man with whom the immediate transaction occurs. In a general way, it is said that the company is able to carry its customers as much and as long as they can show that they deserve to be trusted. The Maxwell people count on a large increase of business.

Kalamazoo's Prosperity Week Draws Great Crowd

Not Even Damp Weather Keeps Prospects Away from Salesrooms—Farmers Flock to Exhibits—Venture to Be Repeated

KALAMAZOO, October 16—Prosperity Week, which was held from October 4 to 9, was a success notwithstanding the cold and rainy weather which prevailed almost daily. Thousands of people from this part of the state came to the city, and, if the actual sales of cars did not reach a very big figure, nevertheless several dealers say they did well and some say they are most satisfied.

While this Prosperity Week did not originate with the automobile dealers and was the first event of the kind ever attempted here, it is most likely that it will be repeated next year and will then be a real success, as it will be held earlier in the season when the weather is still generally good and not so cold.

What brought about the large number of visitors to the city were the expositions held in the Armory and Knights of Pythias halls, where products made in Kalamazoo were shown by every concern of any prominence in the city. The farm products exhibit was a great feature, drawing a large number of farmers. Without such features the week would not have been a success, as farmers come specially when there is something which appeals to them directly.

Willard Adds 14 Service Stations

CLEVELAND, October 18—Fourteen new service stations have just been added by the Willard Storage Battery Co. This brings the total of Willard stations to 535. The new ones follow:

Conklin & Spindler, Chicago Heights, Ill.; Weber Battery Co., 1312 West Jackson boulevard, Chicago; Hackler Battery Co., Kaufman and 22nd street, Paris, Tex.; Thorne Electrical Co., 515-16 Center avenue, Bay City, Mich.; Woodward Tire & Repair Co., 1325-27 Woodward avenue, Detroit; Geo. H. Gant Elec. Co., 320 South Boots street, Marion, Ind.; Slayton Power Co., Slayton, Minn.; Wells Garage, Wells, Minn.; Handy-Lewis Motor Car Co., Willmar, Minn.; G. G. Gardner, Estherville, Neb.; C. F. Coogins, El Centro, Cal.; C. P. Seeberg, 1918 Tuolumne street, Fresno, Cal.; Herbert Hedges, Oxnard, Cal.; Electric Garage Co., Third and Main streets, Woodland, Cal.

Hudson To Build Only Sixes

DETROIT, October 16—The Hudson Motor Car Co. has made a definite announcement to the effect that it will confine its production to the Hudson six.

Prominent Men of Trade Who Assume New Duties

Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry

J. A. McKenny has resigned his position with the Dayton Buick Co., Dayton, O., to become sales manager of the Standard Motor Car Co., Dayton, Chalmers dealer.

Murray Herron has joined the Springfield Metal Body Co., Springfield, Mass., in the capacity of comptroller. He was formerly a branch and service manager in Detroit for the Stewart-Warner Speedometer Corp.

Walter E. Holland has resigned as research engineer of the Anderson Electric Car Co., Detroit, to become a firm member of the Broadway Automobile Co., Inc., Seattle, dealer for Detroit electric pleasure cars, Walker electric trucks and Elwell-Parker industrial trucks.

L. C. Avery has been appointed technical manager for the Packard-Cleveland Motor Co., Cleveland. He succeeds A. P. Welburn, who takes up new duties in Boston.

H. D. Address, formerly connected with the Chase Motor Truck Co., Syracuse, as division sales manager, has been appointed general manager of the Safe Motor Sales Co., Cleveland. He will continue his relationship with the Chase company.

M. Frank has been made retail sales manager for the Newell Motor Car Co., St. Louis Haynes distributor.

Shannon G. Lees, formerly sales manager for the Jones Motor Car Co., Inc., Richmond, Va., Cadillac distributor, has taken the position of sales manager for the Charles F. Cole Corp., 35 East Colfax avenue, Denver, Pathfinder distributor for Colorado and Wyoming.

W. R. Woods, formerly Hupmobile dealer in the Cripple Creek, Col., district, has been made sales manager for the Hupp Motor Sales Co., 1260 Broadway, Denver, Colorado and Wyoming distributor for the Hupmobile and Locomobile.

George De Witt, formerly district salesman for the Cadillac in Texas and Louisiana, has been placed in charge of the Denver city sales.

W. H. Van Deusen, formerly in charge of the wholesale department of the A. Elliott Ranney Co., New York, and since June wholesale manager for the Carl H. Page Motors Co., is again associated with the Ranney company in charge of the wholesale distribution of King cars.

Fred West, who for two years was at the head of the J. W. Leavitt Co., Portland, Ore., has returned to that field in charge of the Chevrolet line. West will have charge of all of the territory of Oregon, Washington and Idaho with the exception of the city of Seattle.

Harlow Hyde, formerly advertising manager of the Empire Automobile Co., has opened an office in the Telephone building, Indianapolis, and established an advertising and publicity bureau.

H. R. Harrison has resigned as advertising manager of the Chalmers Motor Co. and has been succeeded by Gall Murphy, formerly with the Art Metal Construction Co., Jamestown, N. Y.

B. C. Blackley, for some time manager of the truck department of the J. C. Tucker Co., Chase and Vim dealer in Rhode Island, has been made New England division man-



GROVER C. DAVIS
Inter-State, Muncie, Ind.

District Representatives

XXIX

This is No. 29 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

Grover C. Davis, who is district representative of the Inter-State in Muncie, Ind., has had rather a brief career in the motor car industry, having been identified with it for only a year. He was a New York journalist and advertising man until he began selling Overlands at retail in Muncie. Early in the current year he joined the sales force of the Inter-State company, with which he is identified at the present time.

ager for the Chase Motor Truck Co., Syracuse, N. Y.

S. W. Merritt, former factory superintendent for the Moreland Motor Truck Co., Los Angeles, has been appointed sales manager of Hughson & Merton Co., southern California distributor for Bull tractors.

Charles B. Lindeman, of the Seattle branch of the Firestone Tire & Rubber Co., has been elevated to the position of western advertising manager. His headquarters will be in San Francisco.

J. B. Liner, who has been connected with the Ajax-Grieb Rubber Co. for the past two years, has been made general sales manager of the company.

Oscar R. Taylor, formerly with the Port Huron Engine & Thresher Co., Port Huron, Mich., and also with the General Motors Co., has been appointed secretary of the Puritan Machine Co., with which concern he has been connected for over a year.

Bert S. Bingham has been appointed assistant general sales manager for the Reliance Automobile Co., San Francisco, King distributor for northern California.

D. R. Linsley, formerly factory representative for the Willys-Overland Co., is now with the Grand Rapids, Mich., Overland Co.

Bert Noblett has joined the Peck Auto Sales Co., Grand Rapids, Mich., Studebaker distributor.

J. M. Ready, formerly assistant to Leslie Williams, manager of accounts of the Timken-Detroit Axle Co. Clark avenue plant, has been transferred to the Timken-Detroit Axle Co.'s Metal Products plant.

Silvex Protects the Dealer

NEW YORK, October 18—By way of protecting its dealers from the ravages of the cut-price mail-order house, the Silvex Co., manufacturer of Bethlehem Five-Point spark plugs, is among the first formally to take action against what many jobbers have characterized these parasites of the trade. The Silvex company hereafter will distribute its products only through legitimate dealers whose business policy hinges on price maintenance.

Dealer Factory Visitors of the Week

PAIGE-DETROIT MOTOR CAR CO.

Ell Short Elyria, O.
D. M. Kennedy Mt. Vernon, O.
Geo. H. Bird, Bird-Sykes Co. Chicago
Ray Hull, Economy Garage Middleton, Mich.
C. I. Palmer Grand Rapids
H. A. Porter Grand Rapids
S. D. Bolton, Bolton A. Co. Saginaw, Mich.
Dr. F. G. Olp, Bolton A. Co. Saginaw, Mich.
A. L. Alexander, Central A. & S. Co. Waterloo, Ia.
W. V. Beemer, Schieffer A. Co. Ft. Wayne, Ind.
C. A. Riggie, Riggie & Kintigh Goshen, Ind.
Chester Schieffer, Schieffer A. Co. Ft. Wayne, Ind.
S. R. Jansheski Piqua, O.

PACKARD MOTOR CAR CO.

C. P. Joy, Joy Bros. M. C. Co. St. Paul
W. T. Sharpe, Packard Cleveland M. Co. Akron, O.
E. B. Jackson, Packard M. C. Co. of N. Y. Cleveland
F. C. Graves, Packard M. C. Co. of Boston Boston
F. R. Porter, Packard Cleveland M. Co. Cleveland
R. E. Campbell, Packard Cleveland M. Co. Cleveland

C. A. Forster, Packard Cleveland M. Co. Cleveland
M. H. Sherwood, Packard M. C. Co. of Chicago Grand Rapids
J. Schiott, Blue Ribbon Garage Bridgeport, Conn.
F. E. Avery, F. E. Avery & Son Columbus
L. L. Berk, Packard M. C. Co. of Pittsburgh Pittsburgh
R. J. W. Hamill, Packard M. C. Co. of Baltimore Baltimore
Walter W. Wood Marietta, O.

STUDEBAKER CORP.

E. R. Benson Portland, Me.
E. P. Kelly Hudson, Mich.
C. A. Spear Syracuse
C. H. Clayton Freehold, N. J.
B. D. Hathaway Berea, O.
H. H. Sanders Whitinsville, Mass.

FRANKLIN AUTOMOBILE CO.

P. C. Ford, Ford Gar. Co. Glens Falls, N. Y.
G. R. MacCollum, Franklin M. C. Co. Rochester, N. Y.
W. B. Reynolds Warren, Pa.
C. G. Heck, Franklin M. C. Co. Albany, N. Y.
O. D. DeWitt, Eureka M. C. Co. Scranton, Pa.
W. S. Lee Whites-Barre, Pa.
A. G. Perretz Brooklyn, N. Y.

Massachusetts Registers Nearly 100,000 Vehicles

Applications at Rate of 150 a Day Boost Total to Date 19,346 Ahead of All Last Year—Dealers Increase 193

BOSTON, October 15—Before October is ended there will have been registered in the Bay State more than 100,000 motor vehicles. E. J. O'Hara, who has charge of the registration department, stated today that with the numbers being issued at the rate of about 150 a day there was no question about these figures being reached.

The nine months of this year show a very decided increase over the entire year of 1914. There is not one department in which the 1915 figures to October 1 do not jump well above those of 1914. And when comparisons are made of the first nine months of this year and last the gain is even more pronounced.

In the number of vehicles there were 19,346 more registered this year than for all of last year. For the same period the truck shows a gain of 2,914, the makers and dealers, 193, the licenses 12,216, the renewals 7,452, and the examinations 1,308. Following is a summary of registration to date:

	Total 1914	Jan. 1 to Oct. 1, 1915	Increase over Entire 1914
Total receipts.....	\$925,964.75	\$1,158,976.30	\$234,011.55
Motor vehicles.....	77,246	96,582	19,346
Trucks.....	8,236	11,150	2,914
Manufacturers and dealers.....	1,518	1,711	193
Licenses—Opr. and Chauf.....	26,858	39,074	12,216
Renewals—Opr. and Chauf.....	72,674	80,126	7,452
Examinations.....	7,497	8,805	1,308

*Includes trucks.

Stutz Drops Racing Indefinitely

INDIANAPOLIS, October 18—After five years of success in road and track races, the Stutz Motor Car Co. today announced through its president, Harry C. Stutz, that it will quit racing indefinitely. In an interview, Harry C. Stutz, president of the company, said in part: "We may quit for six months and then again we may be out of racing for six years or forever."

Indianapolis Race To Be 300 Miles

INDIANAPOLIS, October 18—Carl Fisher, president of the Indianapolis Motor Speedway, has announced that the next race slated for the Indianapolis speedway, May 30, 1916, would be 300 miles instead of 500, as has been the custom heretofore.

Western Chalmers Men Dine

DENVER, October 16—Twenty-five Chalmers dealers from Colorado and Wyoming towns were given a banquet Oct. 19 at the Savoy Hotel by E. J. Johnson, Chalmers distributor for this

territory. F. B. Willis, the company's sales manager, and J. M. Robbins, factory representative, gave talks on construction features and practical selling points, and several of the dealers reported upon trade conditions in their respective localities.

HERE'S NEW KIND OF BODY POLISH—!*@?!!

ATCHISON, KAN., October 14—Atchison owners have recently run up against a new sort of swindle—at least they so consider the transaction. Somebody came to town with a new sort of automobile polish which was sold at \$1.50 per gallon. The polish seems to have contained nothing but paraffine with coloring matter. The car looked all right for a few minutes until the dust began to settle and then the owners got busy trying to find something with which to remove the paraffine.

Schmidt Heads Pullman Company

YORK, PA., October 16—John C. Schmidt has been elected president of the Pullman Motor Car Co. and will assume his new duties at once. He is president of the Standard Chain Co., York; a director in the York Car Co., the York Railways Co., and the York National Bank, and is senior member of the Schmidt & Ault Paper Co.

Kansas Has 2,487 Tractors

TOPEKA, October 14—J. C. Mohler, secretary of the State Board of Agriculture, has completed a census showing 2,487 tractors in the state on March 1. Barton county, the leading wheat producing county, has the largest number, 123. The larger number of tractors is in the corn belt. Thirty-seven counties in that district have a total of 1,209 tractors.

Survey of Dixie Highway, Chicago-Miami, Started

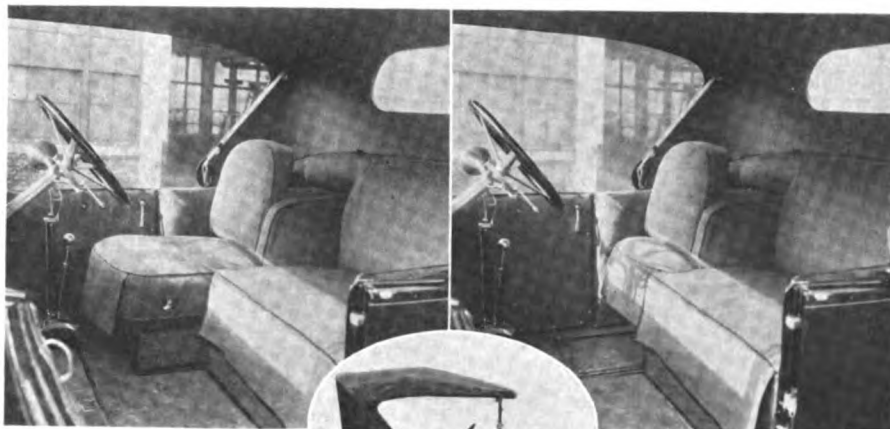
Work of Charting 1,800 Miles of Boulevard Connecting North and South Has Auspicious Start—Tour Will Terminate Oct. 23

CHICAGO, October 18—The route of the proposed Dixie Highway, which is to be a stretch of good road connecting Chicago with Miami and will be 1,800 miles long, is being surveyed by Field Secretary Gilbreath and President M. M. Allison of the Dixie Highway Association. W. M. Dilsaver, J. H. Friberg and George Scarborough also are driving cars for the whole distance, and the party will include the Standard Oil company's car. Quite an elaborate ceremony, consisting of dedicatory speeches and tableaux, preceded the start of the trip from Chicago, October 9. Governor Dunne of Illinois was the guest of honor and gave an address, as did also a representative of Mayor Thompson of Chicago. The tourists are being greeted by groups of farmers in the country and crowds and brass bands in the towns and villages. It is expected that the tour will terminate at Miami Saturday, October 23.

Ford Tractor Long Way Off

DETROIT, October 16—So many Ford dealers are still writing to the Ford Motor Co., asking when the new Ford farm tractor will be placed on the market, that the Ford company has recently sent a letter to dealers which makes it plain that for at least six months, and perhaps even for two years, no Ford tractors will be placed on the market.

Pierce-Arrow Adds Unusual 3-Passenger Roadster



Passengers are side by side, the driver's seat shifting back out of the way

On the 38 chassis the price is \$4,300; 48 chassis, \$4,900; 66 chassis, \$5,900

FORD MOTOR SURPLUS TOPS \$59,000,000

DETROIT, October 18—The Ford Motor Co., during its 1915 fiscal year, which ended July 31, and extended over a period of only ten months instead of twelve as in 1914 and former business years, was able to set aside the extraordinary surplus of \$59,135,770.66. This is an increase of \$10,308,738.59 over the surplus at the end of 1914, \$31,011,507.66 more than the surplus was in 1913 and an increase of \$44,390,675.09 over the 1912 surplus.

Even more astonishing is the cash on hand or in banks, which totaled \$43,788,151.23 at the end of last July, or ten months, while at the end of September, 1914, or for twelve months, the total was only \$27,441,468.79, which means that in the ten months of the 1915 business year the cash increased by \$16,346,682.44. In 1913 the cash balance was \$13,225,710.82 and in 1912 it totaled \$6,400,100.66.

The balance sheet is given herewith.

CARS FROM PHILADELPHIA

PHILADELPHIA, October 18—The Biddle Motor Car Co., which has been newly formed, is preparing to place on the market a line of four cars, two of which now are ready. These are a touring car to sell for \$1,880 and a roadster at \$1,700. The third will be a town car to sell at \$3,000 and the fourth car of the same type at the same price and equipped with a Duesenberg motor. The chassis illustrated is designated series D and is equipped with a three-point suspended Buda unit power plant, with four cylinders, $3\frac{3}{4} \times 5\frac{1}{2}$. Ignition, lighting and starting are Westinghouse and fuel is fed from a Stewart vacuum tank. The wheelbase is 120 inches and tires are 32 x 4.

McGraw Adds Coast Branches

EAST PALESTINE, O., October 18—The McGraw Tire & Rubber Co. will open direct factory branches on the Pacific Coast in San Francisco, Los Angeles and Portland, these to be under the district management of S. L. Warner, formerly superintendent of branches; C. K. Whittaker, formerly Kansas City manager, will be sales manager. C. H. Connelly, formerly Buffalo manager, will be in charge of the Kansas City branch; G. J. Marshall, formerly assistant branch manager in Buffalo, will take charge of the Kansas City branch; R. G. Nelson has been made superintendent of branches. At the annual meeting of the stockholders the officers and directors were re-elected.

Larrabee-Deyo Co. Builds 2-Ton Trucks

BINGHAMTON, N. Y., October 17.—The Larrabee-Deyo Motor Truck Co. has been incorporated in this city with a capital of \$80,000 to manufacture a 2-ton truck. This company is practically a reincorporation of the Sturtevant-Larrabee Co., which has made wagons and sleighs for the past 40 years. The manufacture of trucks will start at once.

Velie Adds New Coupe

MOLINE, ILL., October 18—The Velie Motor Vehicle Co. is placing on the market a new type of four-passenger coupe with the driver's seat slightly ahead of the two passengers adjacent to him. The fourth seat is mounted on a stationary pedestal but can be revolved in any direction. The body is mounted on the model 22 six-cylinder chassis and

Factory News of the Week

sells for \$1,750. Deliveries of the Biltwell roadster at \$1,045 are now being made.

SIX-CYLINDER TRUCKS

PORTLAND, ORE., October 18—The Gersix Co., which is headed by Edward E. Gerlinger and which will produce an assembled truck rated at $2\frac{1}{2}$ tons and selling for \$2,500, has secured a lease on the home formerly occupied by the Pierce-Arrow dealer, a two-story brick structure at East Third and Oregon streets. A feature of the truck will be a six-cylinder Buda motor. It is stated that during the past week orders for equipment totaling \$175,000 and including 100 sets of Westinghouse starting and lighting apparatus, 100 Buda motors and a quantity of Sheldon worm gears and axles have been placed. In addition to assembling trucks, the company will also rebuild and sell used trucks.

Canadian Ford 50% Melon

FORD, ONT., October 18—A cash dividend of 50 per cent on the capitalization of \$1,000,000 has been declared by the Ford Motor Co. of Canada, Ltd.

KLINGENSMITH SUCCEEDS COUZENS

DETROIT, October 14—Frank L. Klingensmith will, beginning November 1, occupy the chair left vacant by the withdrawal from the Ford Motor Co. of James Couzens. Klingensmith is at present secretary of the company. This position he will relinquish and Henry Ford's son, Edsel B., will become secretary of the company. Klingensmith has long been with the company, starting as a clerk at \$12 a week.

NEW DISCO STARTER

DETROIT, October 18—The capital stock of the Disco Electric Starter Co. has been increased from \$60,000 to \$100,000, the additional capital being subscribed by the present stockholders. A further increase in capitalization is being contemplated, the company expecting to start soon to enlarge its plant considerably and add machinery to start production on a large scale. A new and improved type of double unit starter and generator will shortly be placed upon the market.

Moline Plow Builds Cars

MOLINE, ILL., October 18—The Moline Plow Co., of which J. E. Allen is president, has decided to discontinue the construction of buggies and farm vehicles at its Freeport, Ill., plant and to devote that plant to the construction of a pleasure car to sell for less than \$1,000. It is planned to have a separate selling organization for the company's motor car business.

FORD MOTOR CO.'S BALANCE SHEET

	1912	1913	1914	1915*
ASSETS				
Cash on hand and in banks.....	\$6,400,100.66	\$13,225,710.82	\$27,441,468.79	\$43,788,151.23
Michigan municipal bonds at cost.....	1,075,051.48	1,283,943.59	1,330,546.84	1,311,924.10
Accounts receivable.....	230,912.17	448,233.93	3,233,582.73	2,300,456.42
Merchandise inventory at cost.....	6,629,533.83	9,046,171.68	9,284,449.26	14,335,767.87
Outside investments.....	7,772.04	7,433.32	9,200.00	9,200.00
Prepaid expenses.....	44,591.07	215,259.29	437,089.77	385,377.56
Real estate.....	820,636.97	1,540,483.42	2,227,567.88	3,148,263.01
Buildings and building fixtures.....	2,596,115.61	4,615,156.82	10,714,928.45	12,931,884.45
Factory equipment.....	371,110.90	676,589.49	1,661,155.23	2,606,356.06
Furniture and fixtures.....	58,059.39	77,357.60	105,263.95	328,497.30
Power plant and machinery.....	1,843,967.02	2,832,907.33	3,821,465.38	5,693,648.50
Tools.....	566,510.17	824,901.04	1,199,779.11	1,491,824.85
Patterns.....	66,884.06	92,710.13	105,992.30	142,998.22
Patents.....	51,793.96	57,224.27	59,767.47	61,472.84
Machinery, tools and equip. at branches.....	52,746.30	.....	.....	.....
Total.....	\$20,815,785.63	\$35,033,919.86	\$61,632,257.16	\$88,535,840.41

	1912	1913	1914	1915*
LIABILITIES				
Accounts payable, not due.....	\$2,261,026.63	\$3,049,586.86	\$3,335,139.01	\$4,947,805.81
Accrued pay rolls.....	149,166.45	191,940.70	537,489.70	428,907.14
Accrued salaries.....	12,327.45	24,169.30	44,229.95	341,814.16
Accrued expenses.....	178,766.10	266,119.43	218,140.50	463,111.47
Contract rebates.....	58,350.00	25,960.00	621,381.12	1,281,661.01
Contract deposits.....	.....	.....	1,452,622.82	1,968,844.89
Reserve for refunds to take care of reduction in price.....	75,000.00	.....	.....	.....
Reserve for employees' bonus.....	242,033.80	134,999.96	.....	.....
Reserve for bad debts.....	3,655.04	3,510.55	.....	.....
Reserve for depreciation of fixed assets.....	742,626.89	1,061,805.25	1,935,440.07	2,885,188.94
Reserve for depreciation of patents.....	51,793.96	7,224.27	59,767.47	61,472.84
Fire insurance reserve.....	11,900.40	34,059.63	43,934.45	51,263.49
Reserve for profit-sharing.....	.....	.....	2,557,080.00	15,000,000.00
Unearned profits—branches.....	284,043.34	60,370.23	.....	.....
Capital stock.....	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00
Surplus.....	14,745,095.57	28,124,173.68	48,827,032.07	59,135,770.66
Total.....	\$20,815,785.63	\$35,033,919.86	\$61,632,257.16	\$88,535,840.41

*The 1915 statement represents the business for only ten months, because last year it was decided to change the end of the fiscal year from September 30 to July 31.

STANDARD-DETROIT TRACTOR TO COST \$700

DETROIT, October 18—The farm tractor to be made by the Standard-Detroit Tractor Co. is to sell at under \$700, and to be a one-man outfit. The stockholders are principally officers of the Federal Motor Truck Co. G. S. Jacobs is the designer of the tractor. He was formerly connected with the Oakland Motor Car Co. and the Rapid Motor Vehicle Co., Pontiac, Mich., also the Rumely Co., La Porte, Ind.

The officers of the company are: M. L. Pulcher, president; Charles F. Mellish, vice-president; L. W. Goodenough, treasurer; F. G. Jacobs, secretary. G. S. Jacobs is manager. Edward P. Hammond, president of the Gemmer Mfg. Co.; Thomas E. Reeder, president of the Federal Motor Truck Co., together with the officers, form the board of directors.

The constructional features of the tractor will be four-cylinder block motor of 30 to 35 horsepower; two front wheels with 8-inch steel tires, two rear drive wheels each with 24-inch wide tires, a gearset fully enclosed and running on roller bearings and final drive by chain. The chassis will be of special design, but many standard automobile parts will be used.

Detroit Commercial Gets Plant

PONTIAC, October 17—The Detroit Commercial Car Co., which will make the Detroit package delivery wagon at \$690 and \$745, will occupy part of the factory building of the Pontiac Chassis Co., which concern is making the chassis. According to President W. D. Paine of the latter company, schedules have been laid out for an output of 5,000 trucks the first year. A selling organization is being completed and within a short time the entire organization will be in full activity.

Bosch Magneto on Eight More

NEW YORK, October 15—The Bosch Magneto Co. has closed contracts with the following companies to use Bosch ignition the coming season: Chandler Motor Car Co., Cleveland; Brewster & Co., New York; Stewart Motor Corp., Buffalo; R. M. Owen & Co., New York; W. I. Twombly, New York; Atterbury Motor Car Co., Buffalo; Blair Motor Truck Co., Newark, O.; Brockway Motor Truck Co., Cortland, N. Y.

England Taxes Rubber 2½ Cents per Lb.

NEW YORK, October 18—Rubber from Ceylon and exported by England has been taxed 2½ cents a pound by Great Britain, thus adding about \$500,000 yearly to the cost to rubber importers in this country.

U. S. Light & Heat Convention

NIAGARA FALLS, N. Y., October 16—The annual sales convention of the U. S. Light & Heat Corp. was brought to a close tonight, more than 50 branch managers and salesmen from all over the country having been guests of the company for the past three days.

McGregor Ford Canadian Vice-president

FORD, ONT., October 15—Gordon M. McGregor, who has been secretary, treasurer and general manager of the Ford Motor Co. of Canada, Ltd., has been promoted vice-president to fill the vacancy left by the retirement of James Couzens from both the parent and the

Canadian companies. Mr. McGregor will continue as treasurer and general manager, but the position of secretary will be taken care of by W. R. Campbell, who has been assistant manager of the company.

Houghton Sulky Takes Up Trucks

MARION, O., October 18—The Houghton Sulky Co. will start building 1-ton trucks. These will be styled Houghton and the first will be on the market about January 1. R. Wottering is the engineer in charge of the designing department. The truck will be equipped with a four-cylinder motor developing 22 horsepower and a three-speed gearset. The axle will be an improved floating type.

HUFF DODGE BROTHERS CHIEF ENGINEER

DETROIT, October 19—Beginning November 1, Russell Huff, consulting engineer of the Packard Motor Car Co., becomes chief engineer of Dodge Brothers. Almost from the time the first Packard car was brought out, Huff has been connected with Packard development. He was the right-hand man, from the engineering end, of S. J. W. Packard, when the latter was making his first cars in Warren, O., about 1900. Ever since he has been one of the big engineers, not only of the Packard organization but in the country. He is to be the next president of the Society of Automobile Engineers.

COUNSELMAN REENTERS TRADE

DETROIT, October 18—After nearly one year of retirement from activities, Lee Counselman, who, in November, 1914, retired from the Chalmers Motor Co. as first vice-president and general manager of the company, has now reentered the active world and has become associated with J. T. H. Mitchell, Inc., advertising agents, with offices in New York and Chicago. He will be with the Eastern headquarters, which are at 8 West Fortieth street.

Churchward Resigns from Gray & Davis

BOSTON, October 19—Alexander Churchward, chief engineer of Gray & Davis, resigned October 15. He will take a long vacation. It is stated that no change of policy will follow his resignation from the company.

Stewart-Warner Adds Building

CHICAGO, October 18—The Stewart-Warner Speedometer Corp. has started work on a new factory building which will have a floor area of 275,000 square feet as compared with the present plant with an area of 170,000 square feet floor space. It will be a seven-story brick and concrete structure, 291 x 191. When the new building is completed there will be a total floor area of 445,000 square feet.

Caille Adds Vehicle Motor

DETROIT, October 19—The Caille Perfection Motor Co., for over 8 years in the marine motor field, has produced a light six-cylinder motor for low-priced cars. It is a neat block design with cylinders 3¼ x 5 inches and develops 35 h. p. at 1,500 r. p. m., although the maximum speed is above 2,250. The motor has a detachable head and the valves are all on one side. There are three main bearings. Oiling is by splash-pressure.

RACINE HOME FOR WALLIS TRACTOR

RACINE, WIS., October 18—The plant and headquarters of the Wallis Tractor Co., Cleveland, will be moved to Racine by the end of October. The concern was organized about 18 months ago by H. M. Wallis, president of the J. I. Case Plow Co., Racine, whose son is the designer of a farm tractor. A plant was established at Cleveland, in charge of the son. It is now desired to concentrate production at Racine and a large part of the former Racine-Sattley Co.'s Racine works have been leased as a permanent home for the tractor company.

Studebaker Breaks Production Record

DETROIT, October 16—At the Studebaker Corp. all former production records were broken today when 347 cars were made. How soon this mark will be passed no one at the plant would dare say, but an official said that he hoped that 500 cars a day will be a matter of fact within the next 60 days.

Chalmers Shipments Gain 302%

DETROIT, October 16—Shipments of the Chalmers Motor Co. for the quarter ended September 30 showed a gain of 302 per cent over the same period of 1914. The company sold 150 more cars in July, August and September this year than were sold in the first nine months of the fiscal period ended June 30 last.

Holtzer-Cabot in New Plant

BOSTON, October 15—The executive offices and factory of the Holtzer-Cabot Electric Co., formerly located in Brookline, together with the Boston factories of the company, have just been removed into the company's new plant in Roxbury.

Puritan Takes Over Parts

DETROIT, October 18—The Puritan Machine Co., which recently purchased the stock and parts of the Havers Motor Car Co., Port Huron, has just taken over the stock and parts of the Owen Motor Car Co.

Scripps-Booth Prices Unchanged

DETROIT, October 18—In an announcement just made by the Scripps-Booth Co., it is stated that there will be no reduction in price for the 1916 cars of that company.

Detroit Branch For Van Sicklen

ELGIN, ILL., October 18—The Van Sicklen Co. has opened a branch office at 1255 Woodward avenue, Detroit.

Smith Chalmers Vice-president

DETROIT, October 15—The board of directors of the Chalmers Motor Co. today elected Paul Smith one of the vice-presidents of the company to fill the vacancy left through the retirement from the concern of Lee E. Olwell.

Birdsall Designing Moline Plow Six

DETROIT, October 18—E. T. Birdsall, who has been appointed consulting engineer for the Moline Plow Co., Moline, Ill., is now designing a six-cylinder car for this company, at his headquarters in Detroit.

Motor Car Dealers Recently Established

COLORADO		
Place	Car	Dealer
Akron	Grant	City Garage
Calhan	Grant	R. Gates
Canon City	Grant	J. E. Myers
Colorado Springs	Grant	H. N. Richmond & Sons
Eaton	Grant	C. W. Schultz
Elizabeth	Grant	R. Gates
Ft. Collins	Studebaker	E. O. Slnard
Ft. Morgan	Grant	A. C. Gillette
Idalia	Grant	G. F. Conrad
Limon	Grant	R. Gates
Longmont	Grant	L. L. Swenson
Loveland	Grant	C. W. Coffman
Manzanola	Grant	Manzanola Mer. Co.
Ordway	Studebaker	E. W. Cleverly
Pueblo	Grant	Richard Birge
Pueblo	Studebaker	G. G. Russell
Steamboat Springs	Grant	A. H. Poppen
Yuma	Grant	O. E. Stimson

DISTRICT OF COLUMBIA		
Washington	Dort	Miller Bros. Auto & Sup. House

IOWA		
Glidden	King	E. O. Potter
Hebron	Chandler	Hayes Company
Manilla	Dodge	J. J. Meehan
Mt. Ayr	Hiscoe	H. Reynolds
Mt. Ayr	Hudson	H. Reynolds
New Hall	King	N. Tvedt

KANSAS		
Chapman	Ford	Arnold & Son
Chimarron	Ford	Luther & Sons
Coldwater	Overland	O. Taylor
Great Bend	Franklin	F. Selle
Harper	Paige	Cunningham & Williams
Horton	Bulck	Winterscheidt & Sautter
Hutchinson	Detroit electric	Walnut Street Garage
Sterling	Ford	Farmers Supply Co.
Topeka	Saxon	Capitol Auto & Supply Co.

LOUISIANA		
Echo	King	John Lacombe
Shreveport	Paige	Crawford, Jenkins & Booth

MAINE		
Bangor	Dort	Utterback-Gleason Co.

MICHIGAN		
Ann Arbor	Overland	Del. Begole
Carson	Dodge	Carson City Auto Co.
Carson	Oakland	Carson City Auto Co.
Dowagiac	Ford	Scammon & Adams
East LeRoy	Ford	F. E. Riley
Fair Haven	King	Guy La Bounty
Grand Lake	Studebaker	A. C. Croman
Ishpeming	Bulck	A. J. Hasselblad
Lansing	Auburn	D. H. Mills
Lansing	Dort	Dort Motor Sales Co.
Litchfield	Overland	F. S. Sackett
Marquette	Dodge	R. T. Loveridge
Marquette	Bulck	Cleophas Meilleur
Sheldon	Overland	J. M. Wilson Auto Co.
Sheldon	Hudson	J. M. Wilson Auto Co.
South Lyons	Dodge	C. E. Arms & Son

MINNESOTA		
Laverne	Allen	W. Nelson
Laverne	Hudson	W. Nelson
Minneapolis	Stearns-Knight	Rauch & Lange Electric Car Co.
Rochester	Dodge	R. N. Sweet
St. Clair	Maxwell	Leo Hardware Co.
Sargeant	New Era	Grimm Bros.
Springfield	Oakland	B. F. Mowry
Winona	Maxwell	Gate City Motor Co.

MISSISSIPPI		
Vicksburg	Paige	Wright Brothers

MISSOURI		
Shelbina	Dodge	J. C. Jewitt
Shelbina	Bulck	Byron Maupin

MONTANA		
Billings	Oakland	Batty Motor Co.
Corvallis	Saxon	W. R. Myers

NEW YORK		
Buffalo	Hupmobile	Huse-Patten Motor Car Co.

NORTH DAKOTA		
Flasher	Overland	F. Swanson
Velva	Grant	E. R. Teich

OHIO		
Alliance	Alter	E. R. Coleman
Columbus	Madison	Miller & Carpenter
Toledo	Grant	Union Supply Co.

RHODE ISLAND		
Providence	Paige	Paige Motor Co.

VIRGINIA		
Charlottesville	Hupmobile	Jefferson Garage, Inc.

WISCONSIN		
Elkhorn	Ford	Smart Bros.
Eau Claire	Velle	Murphy & Costello
Fox Lake	Chalmers	Murphy Garage
Janesville	Chalmers	Priestly & Conway
Kewaskum	Chalmers	L. Rosenhimer
La Crosse	Hupmobile	P. Hofweber

Place	Car	Dealer
Mantowoc	Chalmers	L. J. Anderson Co.
Milwaukee	Allen	Lauson-Salentine Co.
Milwaukee	King	Lauson-Salentine Co.
Milwaukee	Westcott	Collins Garage Co.
Milwaukee	Princess	Milwaukee Motor Sales Co.
Milwaukee	Holler	Wells Garage Co.
Oconto	Jeffery	H. Lingelbach
Oconto	Studebaker	Henry Bradley
Platteville	Dodge	The Eagle Garage
Sheboygan	Chalmers	D. & H. Motor Co.
Sheboygan	Oldsmobile	Prange Motor Co.
Sheboygan	Chevrolet	Prange Motor Co.
Westfield	Dort	Schauer Bros.

WYOMING		
Sheridan	Grant	W. C. Reid



*Indicates sanction by A. A. A.

Oct. 19-22	Kansas City, Mo., Quarterly Meeting National Assn. of Automobile Accessory Jobbers.
Oct. 25-27	Columbus, O., State Convention, Columbus Garage Owners Assn.
Nov. 2	New York City, Sheepshead Bay Speedway, 100-mile race.
May 13	New York City, Sheepshead Bay Speedway racemeet.
Nov. 20	Phoenix, Ariz., 150-mile track meet.
May 30	Indianapolis, Ind., Track racemeet.
June 17	Chicago, Ill., Speedway race-meet.
June 28	Des Moines, Ia., Speedway racemeet.
July 4	Minneapolis, Minn., Speedway race-meet.
July 4	Sioux City, Ia., Speedway racemeet.
July 15	Omaha, Neb., Track race-meet.
Aug. 5	Tacoma, Wash., Track race-meet.
Aug. 18-19	Chicago, Ill., Elgin road race.
Sept. 4	Des Moines, Ia., Track race-meet.
Sept. 15	Indianapolis, Ind., Speedway racemeet.
Sept. 16	Providence, R. I., Track racemeet.
Sept. 30	New York City, Sheepshead Bay Speedway racemeet.

THE SHOW CIRCUIT

Oct. 17-18	San Diego, Cal., Show at Exposition.
Oct. 16-23	Pittsburgh Pa., Eleventh annual show, Motor Square Garden, Automobile Dealers Assn. of Pittsburgh.
Oct. 17-31	Dallas, Tex., Show, State Fair.
Oct. 18-25	Troy, N. Y., Show, Armory, Troy Automobile Dealers Assn.
Nov. 1-3	Pasadena, Cal., Show, Hotel Green. Walter Hempel.
Nov. 12-20	Providence, R. I., Show, Automobile Dealers Assn., State Armory.
Nov. 22-27	Binghamton, N. Y., Annual Show, Binghamton Automobile Dealers Assn., State Armory.
Dec. 31-Jan. 8	New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.

Jan. 8-15	Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn.
Jan. 22-29	Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
Jan. 29-Feb. 5	Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
Feb. 7-12	Kansas City, Mo., Show, Kansas City Motor Dealers Assn., Convention Hall.
Feb. 14-19	Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
Feb. 15-20	Omaha, Neb., Tenth Annual Show, Omaha Automobile Show Assn.
March 4-11	Boston, Mass., Fourteenth Annual Show, Boston Automobile Dealers Assn., Boston Commercial Vehicle Assn.
Sept. 21-24	Cleveland, O., Convention, Carriage Builders National Assn.
Jan. 25	Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
Jan. 26-27	Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
Oct. 18-25	Los Angeles, Cal., Broadway Show, Automobile Dealers Assn.
Feb. 19	Newark, N. J., Show.
Feb. 29-Mar. 4	Fort Dodge, Ia., Fifth Annual Show, Fort Dodge Auto Dealers Assn., Terminal Building.

Motor Car Securities Quotations

No quotations for the corresponding date in 1914 are available because of the closing of the Stock Exchange due to the foreign war situation.

		October 16, 1915	
		Bid	Asked
Ajax-Grieb Rubber Co., com	300	..	..
Ajax-Grieb Rubber Co., pfd	101	..	..
Aluminum Castings, pfd	102	..	..
Chalmers Motor Co., com	170	175	..
Chalmers Motor Co., pfd	98½	102	..
Firestone Tire & R. Co., com	575	..	..
Firestone Tire & R. Co., pfd	112	..	..
General Motors Co., com	326	328	..
General Motors Co., pfd	112	113	..
B. F. Goodrich Co., com	76	77½	..
B. F. Goodrich Co., pfd	109	111	..
Goodyear Tire & R. Co., com	330	337	..
Goodyear Tire & R. Co., pfd	108½	110	..
International Motor Co., com	32½	33½	..
International Motor Co., pfd	60	65	..
Kelly-Spgfld Tire Co., com	215	220	..
Kelly-Spgfld Tire Co., 1st pfd	90	92	..
Kelly-Spgfld Tire Co., 2nd pfd	225	235	..
Maxwell Motor Co., com	61	61½	..
Maxwell Motor Co., 1st pfd	96	97½	..
Maxwell Motor Co., 2nd pfd	50	51	..
Miller Rubber Co., com	228	..	..
Miller Rubber Co., pfd	109	110	..
Packard Motor Car Co., com	140	147	..
Packard Motor Car Co., pfd	101	105	..
Paige-Detroit Motor Car Co.	435	450	..
Peerless Motor Car Co., com	122	..	..
Peerless Motor Car Co., pfd	92	95	..
Portage Rubber Co., com	54	56	..
Portage Rubber Co., pfd	92	94	..
Regal Motor Co., pfd	..	21	..
*Reo Motor Truck Co.	19½	21	..
*Reo Motor Car Co.	38½	40	..
Stewart-Warner Speed. Corp., c	76	78	..
Stewart-Warner Speed. Corp., p	106	..	..
Studebaker Corp., com	161	163	..
Studebaker Corp., pfd	110	111½	..
Swinehart Tire & Rubber Co.	90	92	..
U. S. Rubber Co., com	53	54	..
U. S. Rubber Co., 1st pfd	105½	106½	..
White Co., pfd	110
Willys-Overland Co., com	247	249	..
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MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 4

New York, October 27, 1915

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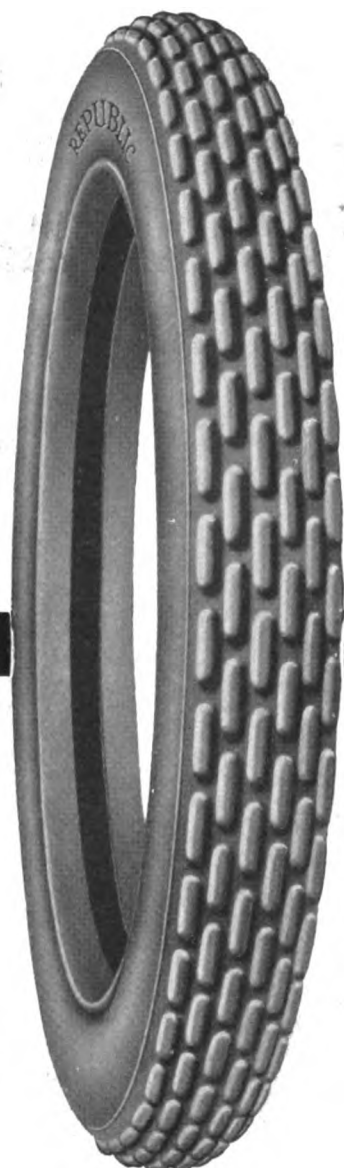
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Overland

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Overland has again been awarded first position at the New York and Chicago Automobile Shows.

This is the third successive year Overland has been the acknowledged leader.

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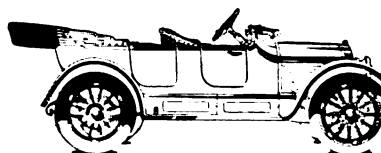
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Toledo

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MOTOR WORLD

Vol. XLV

New York, U. S. A., Wednesday, October 27, 1915

No. 4

Jobbers Air Trade Evils and Will Stamp Them Out

Define "Jobber" and Lay Down Code of Business Ethics—
To Fight Syndicate Catalog, Cut-price House and "Leagues"

KANSAS CITY, October 22—From infancy to manhood in six months! The National Association of Automobile Accessory Jobbers has achieved this growth.

Six months ago it was formed with 14 members. At its four-day convention which closed today at the Hotel Muehlebach it passed the 100 mark. The slogan now, for the New York meeting in January, is "Better than two hundred!" And it seems not only possible but probable.

Organization Needed

It indicates that there was a need for the organization, and its autumn meeting here gave evidence that it is filling that need. Since its formation it has benefited its members. They have been able to save money through following the recommendations made. Trade abuses are on the way to elimination. A spirit of friendship and cooperation has been created in what six months ago was an unacquainted, often unfriendly aggregation of makers and jobbers.

The convention began officially Tuesday; this day was devoted to meetings of committees of jobbers and a meeting of the manufacturers, who are associate members. Wednesday the board of directors met, as did the membership committee.

Thursday and Friday were open meetings at which committees reported, Commissioner William M. Webster read his report, and the discussions, those clearing houses and melting pots of opinion, proved their value as they always do. The sessions were to have closed about noon today, but an afternoon meeting

was necessary. There were no evening meetings scheduled, but one or two committees assembled after dinner. The report of the commissioner and the recommendations of the board of directors were the ground work for many of the discussions.

And things of importance were accomplished. Heretofore any man who

NEXT MEETING IN NEW YORK JAN 7, 8 AND 10, 11

KANSAS CITY, October 22—The National Association of Automobile Accessory Jobbers will hold its next meeting in New York city, January 7 and 8 and 10 and 11.

Dates from Christmas to the middle of February were proposed; and there was not a date proposed to which there was not some exception taken by some member. The general desire seemed to be that the meeting should be held while the western members are in New York for the show, which is December 31-January 8.

Holding the meeting during show week was regarded as impossible because of the press of show business, and holding it the week following was considered impracticable because most of the members would want to hurry home. The compromise arrived at gives Friday and Saturday of show week for committee meetings and holds members over only Monday and Tuesday of the following week for the open or general meetings.

could make loud enough claim that he was a jobber was not unlikely to get a jobber's price. Now there is an accredited list, which eliminates this abuse. Also both jobber and manufacturer are defined and a code of business principles laid down.

Steps were taken to combat such trade evils as the syndicate catalog, the mail-order-house, the "buyers' league," the buying syndicate of questionable merit, future dating, returning of legitimately ordered goods and other abuses; and the association has gone farther and deeper; it has taken up merchandising and business methods. The jobber's business curve is all out of shape, and it is admitted that education of the dealer and garageman are essential to the future welfare of the trade. These things were treated.

The members learned of the Stevens price maintenance bill and decided to back it; it was suggested that future work might include a credit bureau.

What Will Be Tackled

While the organization figuratively has become a man it is as yet a small man compared with what it may become. The next meeting is to be held in New York in January in order that the east may become better acquainted with the association. Since it was born in the west and has held its two or three meetings in the west, some have erroneously concluded that it is a western and not a national organization—which is far from the truth. And there is to be no "eastern chapter." It is and will be all one.

As to future work, there are many things which have not yet been touched;

some of them have not attained the state of crystallized thought.

One of the noticeable characteristics of the organization is its swing and dash. It moves like a machine; it transacts business without lagging; its members

get into the discussions; there are hot contests on the floor, but each one ends in an amicable compromise; all of which is one of several excellent reasons why the association has achieved the success it has.

Jobber Buys in Bulk for Sale to Retailer

Manufacturer Must Have Consumer, Jobber and Dealer Scale and Not Solicit Retail Trade

WHAT A JOBBER IS

A jobber of automobile accessories is one who buys in bulk or quantity for resale to established retail dealers in accordance with established trade methods. It is required that the major portion of the business be wholesale and that he maintain sufficient general stock to meet the requirements of his trade.

WHAT A MANUFACTURER IS

An eligible manufacturer is one who produces one or more accessories on which his policy is to establish a consumer's, a dealer's and a jobber's scale, does not solicit consumer's business and maintains his own scale to both dealer and jobber; legitimate exceptions to be considered according to established customs of the trade conditions of each member.

ONE of the biggest achievements of the jobber's association at its meeting in Kansas City, October 22, was the establishment of a list of jobbers and the defining of both jobber and manufacturer. The definitions are designed for those who operate on sound business principles and are working for the betterment of the trade.

The list of jobbers includes 254; there are about 125 which were not listed. Some of them may be listed, but the probability is that most of them will not be included. It is admitted that the list will never at any time be regarded as complete; it is always open to change. It is merely to serve as guidance for the man who in his dealings with the jobbing trade has not at his own individual command facilities for determining the standing of each applicant for business on a jobbing basis.

Jobbers Must Qualify

It is required that the major portion of the recognized jobber's business be wholesale. He is not prevented from selling at retail, but it is generally known by now that the association frowns decidedly upon the man who operates as a jobber and who sells to consumers at the same time at a less price than does the dealer.

The definition of the term "jobber" is aimed at this evil. There are not a few so-called jobbers who have secured a jobber's price from manufacturers and who have used this longer discount solely for the purpose of underselling the competitor who is a dealer only and who cannot buy as low as the jobber. Many jobbers maintain retail stores, but they are operated independently of their wholesale business.

One member who was admitted at this meeting had to explain that previous undesirable business practices of this and

similar kind had been discontinued. Then he was admitted.

The defining of the term manufacturer aims at similar conditions of better business. Abuses have run rampant in the industry in past years. Manufacturers have sold to jobbers at one price and have been known to sell direct to the dealer at less than the dealer price. All this has served to undermine and demoralize business.

The list of jobbers does not include association members only. That is apparent when it is stated that there are not more than 50 jobbers now in the association and that the list includes 254 names. One of the points which impressed some of the members, especially the associates, is the spirit in which the list was compiled. There was fairness at every turn.

RECOMMENDS FUTURE DATING BE ELIMINATED

KANSAS CITY, October 22—The jobbers' association is opposed to future dating. By this is meant the delivery of an order now and the giving of the maturity date as some time in the future, say three months. Future dating virtually amounts to the seller carrying the buyer's financial burden for a longer or shorter time, and it is not believed he should do this.

A resolution passed reads: "It is the sense of the membership of the association that future dating be eliminated." The remainder of the resolution covers its routine handling. In none of the resolutions is there compulsion; the association is working for cooperative uplift, not forced uplift.

Future dating is regarded as unbusinesslike and as imposing upon the seller a burden which there seems no particular reason for his bearing.

Stevens Bill Is Favored by Association Members

It Is Decided to Recommend Its Passage by Congress—Nothing Compulsory in Measure

THE National Association of Automobile Accessory Jobbers today went on record as favoring the Stevens bill, which would make price maintenance possible. The association recommended that its members take the matter up with the members of Congress in their districts and urge its passage.

The action was taken following an address on the bill by G. A. Waddle, of the Goodyear Tire & Rubber Co. Waddle has made a study of the question and is active in the Goodyear better business work.

The bill, he said, will not permit the man who has a monopoly in his field to maintain a price. It provides that in a case of this kind the manufacturer shall not be permitted to maintain a price, and may maintain a price only in case the field is competitive.

Prices formerly could be maintained, he stated, and it is only since the Supreme Court ruled otherwise in the Santogen case that the practice has been forbidden. Price maintenance is legal in several countries and the bill, he continued, seeks only to restore a former right. Schedules of prices would have to be filed with the authorities, and in case of price-cutting the manufacturer could recover damages in a civil action.

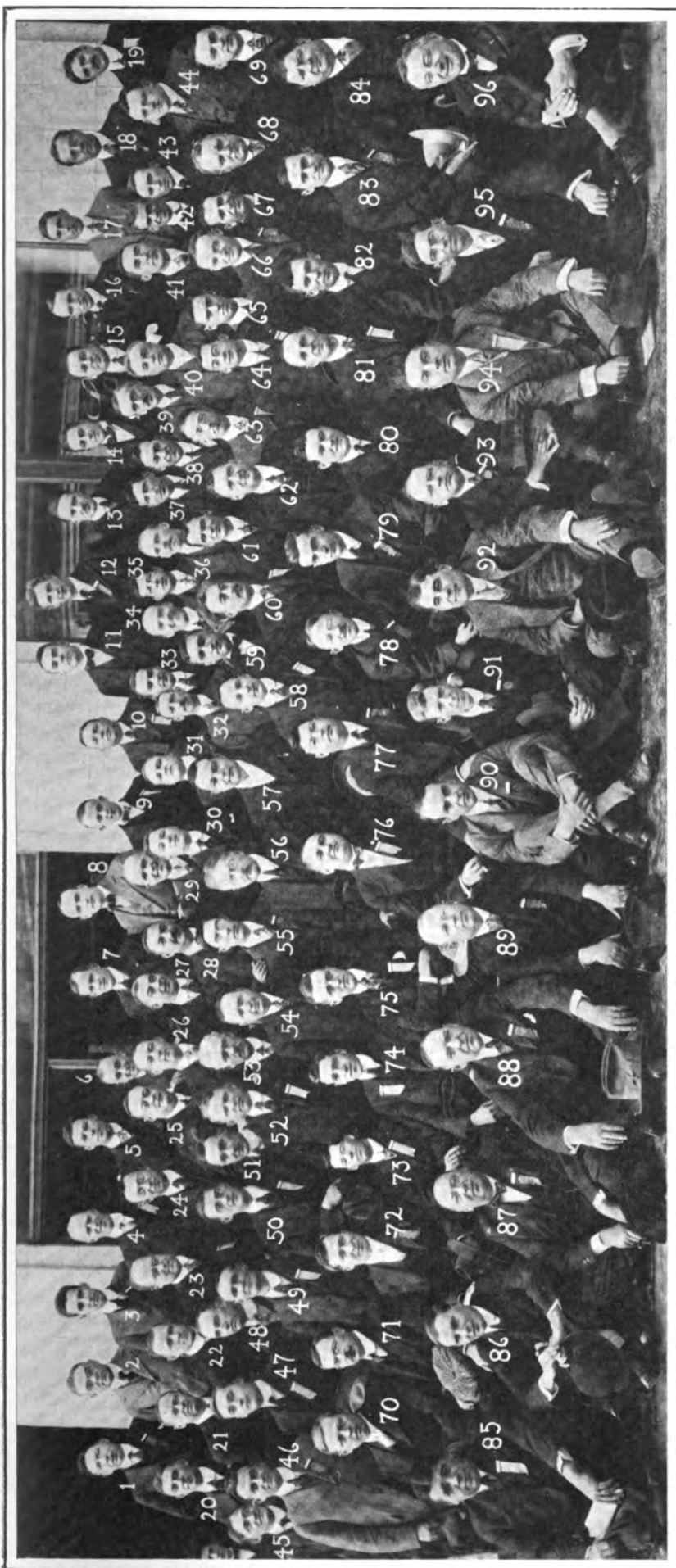
Price-cutting, Waddle asserted, destroys the good-will that the manufacturer may have spent years in building up. It also permits an ignorant dealer to sell at a loss and thereby lessens the manufacturer's chances of an extensive distribution in that it lessens the dealer's chance of continuing in business.

In case of a business failure by a dealer the manufacturer's goods in stock must first be offered to him. If he does not wish to rebuy them, they may, under the law, then be sold at less than the price mark set by the maker.

There is nothing compulsory in the measure, according to Waddle. It merely gives a non-monopolistic manufacturer the right to say at what price his goods shall be sold. He may take advantage of the law at his own desire or discretion but is not required to do so.

WHAT SHOULD BE PROPER JOBBER PROFIT?

KANSAS CITY, October 22—What is the proper percentage of profit to the jobber? If he buys an article at \$10 for what should he sell it? This is one of the questions that will be taken up at the New York meeting in January. It



MEMBERS OF THE NATIONAL ASSOCIATION OF AUTOMOBILE ACCESSORY JOBBERS WHO CONVENED IN KANSAS CITY, OCTOBER 26, 27, 28 AND 29

- 1—J. J. Faeth, Motor & Machinists Supply Co., Kansas City
- 2—H. B. Ramey, American Ever Ready Co., Chicago
- 3—G. H. Rinkenberger, Washington Auto Sup. Co., Washington, Ill.
- 4—J. F. Keegan, Briggs & Stratton Co., Milwaukee
- 5—F. W. Horn, Philip Gross Hardware Co., Milwaukee
- 6—J. Stanley Clemence, Ballou & Wright, Portland, Ore.
- 7—A. E. Dunlap, Jr., Ferris-Dunlap Co., Dallas
- 8—A. L. O'Neill, General Rubber Co., Kansas City
- 9—Wm. F. Edwards, Heinze Electric Co., Lowell, Mass.
- 10—F. B. Carroll, Champion Spark Plug Co., Toledo
- 11—L. P. Zinke, Zinke Co., Chicago
- 12—Edward A. Pegau, Western Motor Supply Co., Omaha
- 13—L. E. Shields, Electric Mfg. Co., St. Paul
- 14—F. A. Harris, Gray & Davis, Inc., Boston
- 15—J. Wadsworth Staff, Silveix Co., New York
- 16—M. Johnson, Wichita Auto. Sup. & Tire Co., Wichita, Kan.
- 19—Emil Grossman, Emil Grossman Mfg. Co., Brooklyn, N. Y.
- 20—Charles J. Parker, Western Motor Supply Co., Minneapolis
- 21—S. T. McColium, Denver Auto Equipment Co., Denver
- 22—Benjamin Weiden, Stevens Auto Tire Co., Kansas City
- 23—A. W. Freund, Federal Miniat. Lamp Div. of Nat. Lamp Wks. of Gen. Elec. Co., Chicago
- 24—Louis A. Safford, McQuay-Norris Mfg. Co., St. Louis
- 25—William K. Norris, McQuay-Norris Mfg. Co., St. Louis
- 26—Mr. Hixson, Clucker & Hixson Co., New York
- 27—A. F. Durkee, Durkee-Atwood Co., Minneapolis
- 28—A. J. Picard, A. J. Picard & Co., New York
- 29—C. L. Darrickson, McQuay-Norris Mfg. Co., St. Louis
- 31—F. W. Grubb, Excelsior General Supply Co., Chicago
- 32—F. R. Blauvelt, R. K. Carter & Co., New York
- 33—J. G. Wathen, Louisville Auto Supply Co., Louisville, Ky.
- 34—E. W. Scott, Frank Mossberg Co., Attleboro, Mass.
- 35—M. L. Harlem, Judd & Leland Mfg. Co., Clifton Springs, N. Y.
- 36—Axel Hansen, Remort Mfg. Co., Seattle
- 37—George Woelfel, secretary to Commissioner Webster, Phinney-Elmer G. Phinney, Phinney-Walker Keyless Clock Co., N. Y.
- 39—Charles H. Eckhard, McQuay-Norris Mfg. Co., St. Louis
- 40—S. F. Beech, Motor Car Supply Co., Chicago
- 41—G. F. Fischer, Gemco Mfg. Co., Milwaukee
- 43—H. F. Brownell, H. F. Brownell Co., Sioux Falls, S. D.
- 44—Bert Talbott, Firestone Tire & Rubber Co., Kansas City
- 45—Benjamin S. Brown, Kansas City News Service, Kansas City
- 46—L. Stern, Interstate Electric Co., New Orleans
- 47—E. C. McKinney, Champion Spark Plug Co., Toledo
- 48—J. T. Mouthrup, Champion Spark Plug Co., Toledo
- 50—C. L. Faulkenburg, Sparks-Withington Co., Jackson, Mich.
- 52—F. J. Radloff, A. Nelson Mfg. Co., Chicago
- 53—J. C. Proctor, Minneapolis Iron Store Co., Minneapolis
- 54—William A. Barrett, Walden Mfg. Co., Worcester, Mass.
- 55—H. K. Wiesler, Herring Motor Co., Des Moines, Ia.
- 56—W. S. Bellows, Walden Mfg. Co., Worcester, Mass.
- 57—C. H. Albrecht, K-W Ignition Co., Cleveland
- 58—Max D. Bendel, Twitchell Gauge Co., Chicago
- 59—E. H. Schwab, Silveix Co., New York
- 60—M. Golder, Metal Specialties Mfg. Co., Chicago
- 61—Herbert F. Reid, M. & M. Co., Cleveland
- 62—E. H. Miller, Victor Rubber Co., Springfield, O.
- 63—V. H. Hansen, V-Ray Co., Marshalltown, Ia.
- 64—M. Walheim, Atlas Specialty Mfg. Co., Chicago
- 65—J. R. Swishelm, Crescent Tool Co., Jamestown, N. Y.
- 66—H. R. Williams, Gibson Co., Indianapolis
- 67—William Trostler, Marvel Accessories Mfg. Co., Cleveland
- 68—J. H. Cooper, Endurance Tire & Rubber Co., New Brunswick, N. J.
- 69—W. H. Schwab, Badger Metal Specialties Co., Milwaukee
- 70—J. W. Barnhisel, Motor & Machine Supply Co., Kansas City
- 71—Charles J. Wood, Wood Auto Supply Co., Utica, N. Y.
- 72—H. G. Smith, Pennsylvania Rubber & Supply Co., Cleveland
- 73—Ernest J. Clark, Curtis Pneumatic Machinery Co., St. Louis
- 75—Joseph Sues, Stewart-Warner Speedometer Corp., Kansas City
- 76—Fred W. Kohli, Zinke Co., Chicago
- 77—John Shuford, Phoenix Auto Supply Co., St. Louis
- 78—H. S. Evans, Automobile Equipment Co., Detroit
- 80—T. J. Smith, Pennsylvania Rubber & Supply Co., Cleveland
- 81—W. E. Fouse, Western Tire & Rubber Co., Kansas City
- 82—Charles E. Scott, Fisk Co. of Texas, Dallas
- 83—Otto Wittman, Kansas City Automobile Supply Co., Kansas City
- 84—E. M. Benford, Benford Mfg. Co., Mount Vernon, N. Y.
- 85—William Sparks, Sparks-Withington Co., Jackson, Mich.
- 86—Ray W. Sherman, Motor World, New York
- 87—W. W. Low, Electric Appliance Co., Chicago
- 88—Charles E. Faeth, Motor & Machine Supply Co., Kansas City
- 89—Fred Campbell, St. Louis
- 90—Sidney B. Dean, Nichols, Dean & Gregg, St. Paul
- 91—T. M. Brooke, pres't of the Ass'n, Automobile Supply Co., Chicago
- 92—Wm. M. Webster, com'r of the Ass'n, 1818 City Hall Square Bldg., Chicago
- 93—A. R. Thompson, Automobile Supply Co., Detroit
- 94—Harry Wedler, Emil Grossman Mfg. Co., Brooklyn, N. Y.
- 95—G. Norman Baughman, G. Norman Baughman Co., Tampa, Fla.
- 96—H. P. Andrae, Julius Andrae & Sons, Milwaukee

is one of the questions on which there is a divergence of opinion and practice. Some discounts are very long while others are so short as not to cover the jobber's cost of doing business, let alone give him a profit.

One of the speakers asserted at the convention that it costs $17\frac{1}{2}$ per cent

to do business and that to make a profit of the same amount there should be a discount of at least 35 per cent to the jobber from the dealer's list. Some manufacturers grade all prices by quantity, and figure that the jobber, by buying in quantity, can assure a sufficient margin below the dealer's price.

the only proper and feasible remedy is education.

In this there are three avenues of operation: The organization of the jobber, the organization of the manufacturer, and the trade paper. In this last connection the speakers mentioned the business educational work that is being featured by Motor World.

The manufacturer, stated the speaker, may help in this work by letters, trade paper advertising and personal work on the part of his salesmen. The jobber's best effort should be through his salesmen. The trade paper's work is through editorial campaigns.

Jobber's Business Curve Is Out of Joint

Expenses Pursue Level Course But Sales Fall Off in Winter—Cost of Doing Business Put at $17\frac{1}{2}$ Per Cent

WHILE the expenses of the jobbing house pursue a nearly level course throughout the year, the sales curve is like a letter S—very high in summer and extremely low in winter.

How to straighten this curve was one of the problems taken up at the jobbers' meeting today. The speakers were H. R. Williams, sales manager of the Gibson Co., Indianapolis, a jobber, and William K. Norris, of the McQuay-Norris Mfg. Co., St. Louis, a manufacturer.

They both agreed that educational work among the garagemen by all manufacturers and jobbers is the only practical solution.

Williams presented figures which he stated represented a composite of the business of three Indianapolis jobbers. These showed, he stated, that the jobbing businesses operate at a loss during the months from October to March inclusive. At that time the summer sales begin to pile up and the jobbers begin to make a profit, but the profits in April, May and June all go to absorb the losses of the winter and the whole earnings of the year must be made in July, August and September. This, he held, is a most unequitable situation.

How the Sales Divide Up

Upon a blackboard Williams showed by curves the progress of sales and the even holding-up of expenses. In addition he cited the proportion of business per month in a total annual volume of \$900,000. The monthly businesses are:

	Per Cent.	Volume
October .....	.0632	\$56,880
November .....	.0442	39,780
December .....	.0323	29,070
January .....	.0278	25,020
February .....	.0399	35,910
March .....	.0662	59,580
April .....	.1297	116,730
May .....	.1350	122,040
June .....	.1390	125,100
July .....	.1182	106,380
August .....	.1232	110,880
September .....	.0807	72,630

This is graphically represented in the accompanying curve chart. It costs, he stated, $17\frac{1}{2}$ per cent to do business, and to this must be added an equal amount for profit, making a total percentage of 35 per cent realized on the selling price. In the winter months the business oper-

ates at 50 per cent less than the $17\frac{1}{2}$ per cent that it costs to do business.

It is impossible to cut the overhead very much because of the necessity for retaining the trained men of the organization. Were they released in the fall it would be necessary to get new ones in the spring, and these men would be new at the business, while the trained men let go in autumn would probably turn up in the employ of a competitor. Therefore, they must be retained the year around.

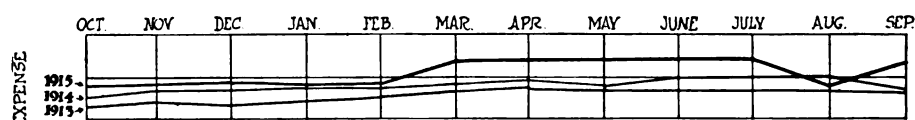
How to Induce Winter Business

How to induce winter business and keep the curve from slumping during cold months was the problem taken up. Several excellent points were made. Williams stated that unless a jobber or manufacturer has a seasonable line which is salable because of the cold weather they both suffer; one recourse of the manufacturer, he stated, is to give the jobber a longer discount in the winter, but that

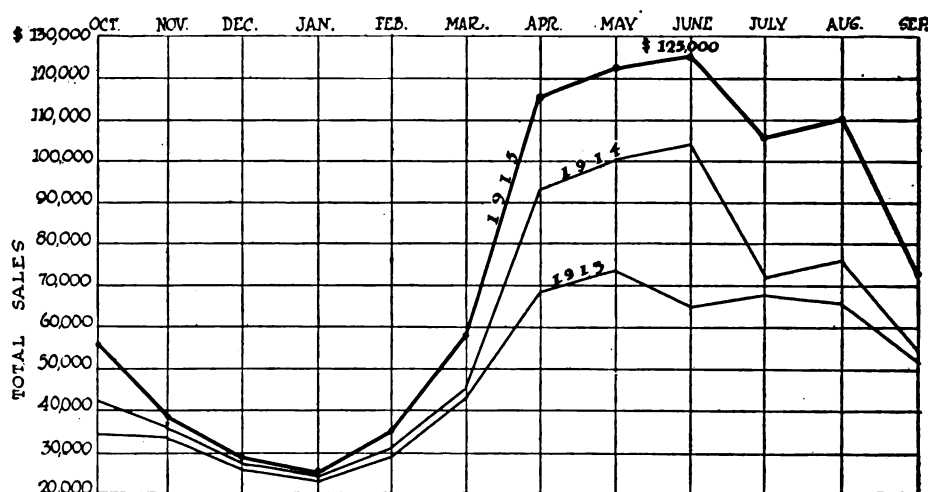
Campaign That Brought Results

Williams explained a campaign that was conducted last winter by the Gibson organization. In November the salesmen were called in from the states where business slumps in the winter, the northern central states, and were instructed in a new work. They were directed to go out into the field and call on garagemen with a winter sales propaganda. Each man spent from 10 minutes to a day with each garageman and dealer who handles accessories, but especially with those who operate repair-shops. The work was concentrated on the towns of between 200 and 800 population and 350 were visited.

The salesmen endeavored to convince the garageman that he should call on the car owners in his territory and advise them that the car can well be kept in operation all winter, or that in case the owner desires not to run it the winter is the ideal time to have it overhauled.



Expense curve. While the sales curve is like a letter S, the expense curve holds up evenly the year around; therefore, in winter the jobbers operate at a loss



Total sales curve. This shows the total sales during 1913, 1914 and 1915 of three Indianapolis jobbers. Weather caused the slump in July, 1914. To straighten this, and not have such a big difference between summer and winter sales is the problem the jobbers are attacking

The garageman, Williams stated, since his shop is more or less idle during the winter, can afford to make estimates on jobs and tell the car owner what a job will cost. This then is done with payments by the car owner at so much a month. If the job costs \$150 and is brought in in December, the owner pays \$50 a month during December, January and February.

It is also advisable for the garageman to secure a cash payment from the car owner of enough to cover the cost of whatever materials or accessories are to be used.

The necessity of salesmanship was urged in selling the car owner certain accessories for refitting the vehicle. These, it was held, can be sold and put on in the winter more easily than in the summer because this overhaul is the only expense at that time. The garageman takes the storage problem off the car owner's hands and takes care of the car until it is done—perhaps longer. Good care also is assured.

As an after effect of this, Williams stated that summer sales of accessories would not be eliminated, since the car owner, having his overhauling and some accessories paid for, will not feel the expense of purchasing certain other things that are desirable when he takes the car out in the spring.

70 Garages Kept Open

The Gibson salesmen called on 350 garagemen and the result was that 70 garages, which ordinarily close up during the winter, were kept open and in operation. Both the garageman and the jobber were benefited. The garageman made money during the winter, and the jobber found a winter market for a certain amount of goods.

In addition the Gibson Co. sent out a letter every three days to its car owner mailing list; this pictured cars in use in the snow. Car manufacturers, Williams said, are now beginning to advertise and advise the use of cars the year around, all of which should help to lessen the trade lethargy of cold weather.

The great difficulty has been found by Williams in small towns of from 200 to 800, which, while small, are the center for a territory in which there may be from 20 to 100 cars; the garageman has great influence with these motorists.

The Gibson Co. also sought to compensate for the winter slump by going after southern business. Five men from the north were sent into the south, but because of the traveling cost due to meagre population in large areas the move proved unprofitable.

Norris, too, held that the solution of the problem is through education of the garageman to the business that can be secured in winter. He displayed several pieces of sales literature which featured this theme and showed samples of

advertisements of Leak-Proof piston rings, his product, used in trade papers. These featured the thought of winter use of the car and hitched to it the sales features of the rings. If all manufacturers would do likewise, he stated, the effect should be great.

Williams asserted as his belief that the garageman is impressed by numbers and that a great number of ads and pieces of literature of this kind would have more effect than one no matter how good the one might be. Norris said his company proposed to continue this ad work of "Summer service in winter weather."

Next winter, he said, the salesmen of the jobbers should be ready and waiting for these campaigns of manufacturers and should draw from them inspiration for their work among the garagemen.

"Another thing," said Norris, "Is any one doing anything to help the financial standing of the garageman? We have failed in all these years to elevate the man as a merchant." If work of this kind also were pushed, he said, it would do much to eliminate all such troubles as returned goods and overstocking. He stated that many jobbers were at fault in over-selling the garageman and that salesmen should be curbed in this. He concluded: "Let us go into our own hearts to find the difficulties and straighten them."

Emil Grossman explained a plan of putting up spark plugs in a Christmas box as a gift to men car owners.

Syndicate Catalog Gets Death-dealing Wallop

"Inimical to Best Interests of Business and Great Source of Expense," Says Association

THE syndicate catalog, one of the abuses of the trade, received a terrible wallop at the meeting of the jobbers' association. The issue even went so far that a syndicate catalog printer from Chicago asked for the floor and made a dynamic presentation of his case. But the ban of the association was placed upon the proposition.

A syndicate catalog is an automobile supply catalog printed in quantity by a printer or a jobber. In some cases blank space is left for the insertion of the name of any firm that buys them. In other cases the book is issued by a jobber only and is distributed among dealers.

One abuse has been that the procuring of a few such catalogs has enabled dealers—who are by no means jobbers—to secure goods from manufacturers at a jobber's price. These goods have then been sold to the consumer at a cut price, or a price lower than it is possible for a regular dealer to make. This obviously

is unfair to all of the parties concerned.

Also, printers of these catalogs have asked manufacturers to pay for space in them. In some cases, it is said, the request has been a "hold up" pure and simple. Jobbers—one in particular—has a catalog and uses it in a manner particularly obnoxious to the jobbers and manufacturers.

The payment by manufacturers for space in any catalog is held to be unfair in that the manufacturer is thereby paying for the sales work of the jobber, despite the fact that the manufacturer is advertising nationally and creating a demand for his goods. The resolution passed follows:

"We believe the encouragement of the so-called syndicate or stock catalog, as applying to the automobile accessory line, either in the matter of purchasing catalogs or as an advertiser or contributor by displaying the produce in such publications, is inimical to the best interests of this business, a source of great expense to the manufacturer without positive or adequate results or gain and in their use the legitimate jobber loses his individuality, owing to the fact that they are both inexpensive and readily obtained and are oftentimes procured by other than legitimate jobbers, creating a false impression of the proper position of the owner or author in the trade and securing to him trades favors to which his position in the line nowise entitles him.

"It thereby works an irreparable injury to the legitimate jobber, and we hereby discountenance and disapprove of further encouragement or patronage of same. Furthermore, no allowance of whatever nature shall be made by the manufacturer to the jobber for cataloging his goods, except that the manufacturer will furnish standard electrotypes only."

There was some discussion as to the economic value of the catalog which can be bought by the jobber at a low price. It covers practically all the goods he sells and serves his purpose to a certain extent, but the consensus of opinion was that were this practice to spread, jobbers would submerge their individualities and be not benefited in the long run.

William K. Norris asserted that an important reason for condemning the syndicate catalog is that it may encourage substitution on the part of the dealer who does not carry the trade-marked goods advertised in the catalog and who endeavors to sell something else when a demand is made for the standard article.

MAIL-ORDER OCTOPUS GETS KNIFE

KANSAS CITY, October 21—The mail-order octopus received another slap today. The jobbers' association gave it

to him. There is little need for discussing the octopus and the way he is hurting the trade of jobbers and dealers in accessories, and the principal fact is that the association went on record "as discountenancing the sale of materials to mail-order houses and the so-called motor leagues."

It was also resolved "that the feeling of the association is that there is no field for syndicate purchasing agencies." This was aimed principally at a Chicago man who has formed an association, the name of which indicates that it is a trade association, but which is said to be merely a commercial proposition. There are in addition other "leagues" which advertise to sell to members at cut prices.

The association also resolved that it is against its principles to sell to any garageman, dealer or repairman at less than his legitimate price merely because he is a member of any association or "league."

Charge 10 per cent to Handle Goods Returned

**Charge Customer, Too, for Wrapping
and Insurance—Refuse Reversed
'Phone and Telegrams**

ONE of the most successful and valuable plans which has resulted from the formation of the jobbers' association is that of charging 10 per cent for handling goods which are ordered by dealers and which are later returned.

Coupled with it are the practices of adding 5 cents for wrapping and mailing parcel post packages, adding 5 cents for insurance and postage, and declining to accept reversed telephone and telegraph messages. These things were recommended at the May meeting.

W. W. Low, of the Electric Appliance Co., Chicago, said these things had saved him enough already to pay his dues for several years. Sidney B. Dean told how the jobbers in the Twin Cities, even those who are not members, had gotten together and worked out most of these reforms successfully. Collect telegram charges, he said, are accepted, but are added to the invoice. Complaints in all cases are becoming fewer.

The plans are aimed at dealers who order irresponsibly; often they are said to order two horns for the inspection of a customer, who buys one; the other is returned to the jobber. Nichols, Dean & Gregg, St. Paul, uses in this work a sticker which is attached to all invoices. It says:

Returned Merchandise

When orders have been correctly filled, we can not allow the return of goods, unless a full explanation has been made and consent obtained. If accepted, all goods returned in a salable condition will be credited at the

price prevailing when the goods are returned, less a 10% service and re-handling charge, and shipping expenses.

Members Who Attend Get \$5 If on Time

**Cash on Spot If He Answers Roll Call—
Railroad Fare to Convention
Also Is Paid**

JOBBER'S initiation fees in the National Association of Automobile Accessory Jobbers will remain at \$100 until, at least, the annual meeting in January. The dues of manufacturers, or associate members, are \$100, which covers the initiation fee also.

The association now has in the treasury \$7,208.11, and was formed only last May. The constitution mentions dues of \$500, but Commissioner William M. Webster explained that this is the maximum limit and that dues never will be more than is necessary for the operation of the association.

The organization has an excellent plan for assuring attendance. Instead of it costing a jobber member money to attend a meeting he loses money if he stays home. He pays a certain amount as dues, and when he attends a convention his fare is paid. Also, if he is present at the first and last roll calls of every session he gets \$5 cash right on the spot—in real money.

This means not \$5 for the whole convention, but \$5 for each morning or afternoon session. The doors are closed promptly at 10:30 a. m. and 2:30 p. m., the convening hours, and the roll is called. Several members lost \$5 by operating on the assumption that 10:30 means anything from 10:30½ to 10:40. But they did it only once.

After the roll is called, late members are admitted, but they get no \$5. Also, no member can leave the session or be readmitted without the permission of the chair, and the sergeant-at-arms at the door is a real official. He is as particular as a pigs-is-pigs station agent.

THE MEMBERSHIP

The National Association of Automobile Accessory Jobbers began in May with 14 members. At the Kansas City convention it reached 106. The goal set for the New York meeting in January is 200. There are about 45 jobbers and a few more than that associate members, or manufacturers. This is the list at the close of the convention:

Andrae & Sons, Julius, Milwaukee; Automobile Supply Co., Detroit; Automobile Supply Co., Chicago; Auto Equipment Co., Denver; Automobile Equipment Co., Detroit; American Bronze Co., Berwyn, Pa.; Atlas Auto Supply Co., Chicago; Atlas Specialty Mfg. Co., Chicago; Au-To Compressor Co., Wilmington, O.; Automobile Supply Mfg. Co., Brooklyn, N. Y.

G. Norman Baughman Co., Tampa, Fla.; H. F. Brownell Co., Sioux Falls, S. D.; Ballou & Wright, Portland, Ore.; Benford Mfg. Co., Mt. Vernon, N. Y.; Badger Specialties Mfg. Co., Milwaukee; Brown & Caine.

Fred Campbell, St. Louis; Chanslor & Lyon Co., San Francisco; Crum Mfg. Co., Ottawa, Kan.; Champion Spark Plug Co., Toledo, O.; Crescent Tool Co., Jamestown, N. Y.; Curtis Pneumatic Machinery Co., St. Louis; Central Brass & Fix. Co., Springfield, O.

Davies-Young Soap Co., Dayton, O.; Double Fabric Tire Co., Auburn, Ind.; Durkee-Atwood Co., Minneapolis.

Electric Appliance Co., Chicago; Electric Mfg. Co., St. Paul; Excelsior Gen. Supplies Co., Chicago; Equipment Co., Kansas City; E. Edelman & Co., Chicago; Edmunds & Jones Mfg. Co., Detroit; Endurance Tire & Rubber Co., New Brunswick, N. J.

C. D. Franke & Co., Charleston, S. C.; Ferris-Dunlap Auto Sup. Co., Dallas, Tex.; Fisk Co. of Texas, Dallas; Findelsen & Kropf Mfg. Co., Chicago; Federal Tire Co., Milwaukee; Federal Miniature Lamp Div. of the National Lamp Wks. of the General Electric Co., Chicago; Firestone Tire & Rubber Co., Akron.

General Sales Co., Detroit; the Gibson Co., Indianapolis; Ph. Gross Hdw. Co., Milwaukee; J. D. Grant, Fargo, N. D.; Gemco Mfg. Co., Milwaukee; Globe Machine & Stamping Co., Cleveland, O.; Emil Grossman Mfg. Co., Brooklyn, N. Y.; General Rubber Mfg. Co., Kansas City; Gray & Davis, Inc., Boston.

Herring Motor Co., Des Moines, Ia.; Interstate Electric Co., New Orleans; Indiana Lamp Co., Connersville, Ind.; Illinois Brass Mfg. Co., Chicago.

Judd & Leland Mfg. Co., Clifton Spring, N. Y.; Kellogg Mfg. Co., Rochester, N. Y.; K-W Ignition Co., Cleveland; Louisville Auto Supply Co., Louisville, Ky.; Lovell-McConnell Mfg. Co., Newark, N. J.

M. & M. Co., Cleveland; Morley-Murphy Hdw. Co., Green Bay, Wis.; Manufacturers Supplies Co., Philadelphia, Pa.; Minneapolis Iron Store Co., Minneapolis; Motor Car Supply Co., Chicago; Motor & Machinists Supply Co., Kansas City; Meadows-Price Co., Roanoke, Va.; McQuay-Norris Mfg. Co., St. Louis; Metal Stamping Co., Long Island City, N. Y.; Metal Specialties Mfg. Co., Chicago; A. R. Mosler & Co., Mt. Vernon, N. Y.; Milwaukee Auto Eng. & Sup. Co., Milwaukee; Frank Mossberg Co.

National Electric Sup. Co., Washington, D. C.; Nebraska-Buick Auto Co., Lincoln, Neb.; Nicols, Dean & Gregg, St. Paul; Northwestern Chemical Co., Marietta, O.; Nungesser Carbon & Battery Co., Cleveland; A. Nelson Mfg. Co., Chicago.

Ozburn Automobile Supply Co., Memphis, Tenn.; Penn. Rub. & Sup. Co., Cleveland; A. J. Picard & Co., New York; W. E. Pruden Hdw. Co., New York; Premier Electric Co., Chicago.

Roehm & Davison, Detroit; Roberts Toledo Auto Co., Toledo; Reinhard Bros. Co., Minneapolis; Romort Mfg. Co., Seattle.

Sleg Iron Co., Davenport, Ia.; Shuler Rubber & Supply Co., New Orleans; Silvex Co., New York; Sparks-Withington Co., Jackson, Mich.; Standard Steel Box Co., Bridgeville, Pa.; Stevens & Co., New York; Stewart-Warner Speed. Corp., Chicago; Sunderland Mfg. Co., Chicago; Temco Electric Motor Co., Leipsic, O.

V-Ray Co., Marshalltown, Ia.; Victor Rubber Co., Springfield, O.; Weinstock-Nichols Co., San Francisco; Western Motor Sup. Co., Minneapolis; Wetmore-Savage Co., Boston; Western Automobile Sup. Co., Omaha; Wood Auto Supply Co., Utica, N. Y.; Walden Mfg. Co., Worcester, Mass.; Walker Mfg. Co., Racine, Wis.; Weaver Mfg. Co., Springfield, Ill.

DON'T be misled by padded price lists. Don't fall for the false allowance. Some have prepared that little game for you by additional long discounts, some by a high list price and some by both. Don't try to make yourself think that your old car is worth more than it actually is. You are only fooling yourself.

MANY have started to copy. Note our prediction. Many more will follow. We told you the same story ten years ago. Well that gave us just ten years start. We have been continually perfecting this valve in the head.

WE are continually talking about twenty miles per gallon of gasoline on fours and eighteen miles on sixes, marvelous hill climbing ability, etc. Make us prove it. Please give us the opportunity.

Then he lifts the book out, and the psychology of selling gets in its work; in the book, in terse, non-bombastic, not over-assertive style, are five Buick selling arguments

Scientific Selling

Climbing Back on the Structural Work of the Sale

"I THANK you ever so much for the attention you have given me. What you have said impresses me greatly, but I think I will delay for a time the purchase of a car," says the prospect to the salesman in the sales-room of the Buick Boston Co., which retails Buicks in that city.

"You certainly are wise in giving full consideration to the question before you purchase a car," replies the salesman in his most suave but earnest manner. "Investigation now will mean satisfaction afterward.

Some Buying Advice

"In your comparison of cars there are certain things to which I believe you should give consideration, and there are points about the Buick which I wish you would always bear in mind; I have endeavored to the best of my ability to explain to you the merits of our car, and I know you will be pleased with it if you ever drive one.

"Perhaps there is something I have not made sufficiently clear; or perhaps I have seemed over-enthusiastic. Sometime——"

The salesman's hand goes to his coat pocket, and he continues:

"Sometime, Mr. Prospect, I wish you would look this over."

The salesman's hand has come from his pocket with a dignified little booklet of quiet tone and dainty effect, and the salesman cleverly and gently draws the lapel of the prospect's coat and slips the booklet into an upper vest pocket—the pocket where the prospect keeps his pencil and fountain pen.

Still Has Booklet

The salesman permits no drop in the farewell conversation, and as the prospect leaves he is bidden a very sincere good-day; he still has the booklet in his pocket, and, having gone out the door with it in his pocket, he doubtless forgets it temporarily and does not remember it until some time when he reaches for his pencil, in the street car, at home or elsewhere.

Then he lifts it out, and the psychology of selling gets in its work; in the booklet, in terse, non-bombastic, not over-assertive style, are five Buick selling arguments. The salesman's whole story may have been forgotten; the prospect may not have remembered even two of the Buick features, but as he thumbs the pages of the little booklet they come

back to him with renewed emphasis—and he remembers.

The salesman—although perhaps miles away—has climbed back upon the structural work of the sale he is trying to build and has given the nail an extra welt with his hammer, sending it in tighter and more firmly than even a personal call could have fastened it.

It is scientific selling.

It is just one of those little things that are overlooked by the man who does not make a study and a business of his selling. It is such a little thing, on the face of it, that it may be smiled at, but always there are working away down beneath the surface certain subconscious influences of the mind which are a potent factor in selling. All that is needed is that they be harnessed.

Prospect's Mind Receptive

As the prospect pulls the booklet from his pocket he very likely is alone—all by himself. There is at least no salesman present whom he must resist mentally; his mind is more receptive, and under these conditions he is prone to argue with himself—and argue for the Buick, not against it.

The first thing he realizes is that the

booklet is not a cheap, tawdry thing. It is in a dainty gray ink with plain borders on a soft brown paper, and is neatly tied at the top with a bow of light blue baby ribbon.

Some Reminders

After this impression has partially paved the way for the booklet, the prospect reads the title: "Only a Few Reminders." And then: "You will appreciate them some day when on that long, steep hill or in the deep sand or mud."

This thought sinks in. Some day with another make of car there may be trouble on a hill or in the deep sand or mud, and it is almost certain that on this occasion the prospect will remember what that salesman said about Buick power.

He turns to the first inside page and finds an apology for the enthusiasm of the salesman: "We may appear to be over-enthusiastic. We surely have cause to be. If you are not absolutely satisfied on any one point we have endeavored to make, insist that we prove it. We make the suggestion so there can be no obligation on your part."

Over-enthusiasm Better

John H. Johnson, proprietor of this agency and originator of this booklet idea, believes it is better to be over-enthusiastic than under-enthusiastic. In the former case, he says, you can apologize; in the latter case, you have failed of a possible result and have no remedy.

When he turns to the second page he finds that power argument upon which the salesman laid such emphasis: "Too much power. That is what they all said in the years gone by of the famous valve in the head. Quite different today; all concede that the Buick engine is a marvel for power and economy. We have persistently told you about this wonderful valve-in-the-head motor. Why are they all scrambling to get away from the big, heavy, expensive arks they have been trying to unload on you for many years and talking small, economical mo-

tors? The only way to accomplish this is with the valve-in-the-head motor."

The third is on "padded price lists." The fourth is on Buick leadership in design and construction. The fifth is a request that the prospect ask the salesman to prove some of the claims he has made. The last is a strong closing statement. It says:

Power Main Feature

"At this time we won't mention style, lines, finish, detail service, financial strength, permanency of the company or twenty other important things that we would like to discuss with you."

One of the strong features in the plan is that the arguments contained in the booklet are few; there are six pages under the cover and there is but one argument on a real selling point. That is on the power and valve-in-the-head features. The remainder are somewhat general.

It is often regarded as advisable to give the prospect some piece of literature as he leaves the salesroom, and in the absence of anything better he is often given a catalog. This, however, is not regarded as good practice by the originator of the booklet, for he says—and is about right—that the catalog is big and bulky and is likely to be thrown away by the prospect at the first opportunity.

Catalog Not Read

He may put it aside at home and if some of the kids don't ruin it he may forget about it and never see it until he has bought a car of some other make; also, to get from the catalog the main Buick arguments he would have to study, and the arguments the salesman wished to fix in the prospect's mind would be seen in the midst of all the other statements in the catalog, which would not permit the prospect to concentrate properly.

But with the little booklet in his hand he has nothing before him but the Buick arguments. The booklet is not bulky. He is just as likely as not to stick it

back in his pocket and save it, for it is an attractive job. It is only $2\frac{1}{2} \times 4$; around the extreme edge is a border of medium-gray and the story on each page is surrounded by a narrow rule.

The only other decorative attempt is in a couple of printer's figures on the front cover and the use of Old English capitals in the title and at the beginning of each inside page.

What does the booklet do? It makes the prospect think—think after he has left the salesroom! And it tends to make him think the thoughts the dealer wants him to think. It is only one of the many ways of making the prospect's subconscious self get over on the side of the salesman and help the prospect sell himself a car.

Engineers Hear Metallurgical Talks

NEW YORK, October 22—At the October meeting of the Metropolitan Section of the Society of Automobile Engineers, held at the Automobile Club of America last night, two lectures on metallurgical subjects were given. Prof. William Campbell of Columbia University made an address on the elements of metallography and C. F. Roland of the metallurgical department of the National Tube Co. delivered a lecture on steel tubing from ore to tube illustrated by three reels of motion pictures, showing the progressive stages of manufacture from the time the ore is taken from the ground until the tube is finally stamped with the nameplate of the manufacturer.

"Aprons" Cause Trouble in Canton

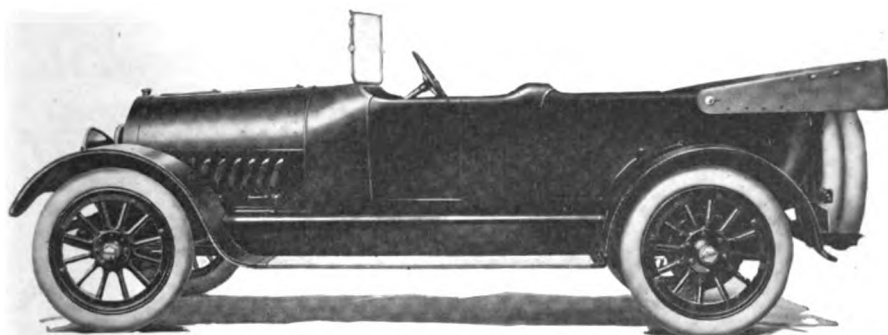
CANTON, O., October 25—Fearing danger of explosions, safety department officials are making a careful investigation of the proposal to compel owners to equip cars with aprons to prevent oil dripping on city pavements. A city ordinance directs that cars be equipped with such aprons, but the safety department officials are not yet certain whether to enforce the law in this regard or to ask council to change the ordinance.



THE MEN WHO SELL BUICKS IN BOSTON: 1—H. M. Ryan. 2—M. A. Maris, Jr. 3—Harry MacMath. 4—J. G. MacMurray.

5—O. L. Sifford. 6—R. W. Shauck. 7—A. M. Marston. 8—D. C. Briggs. 9—Eric Courtney. 10—L. W. Skillings. 11—John H. John-

son, proprietor of the Buick Boston Co. 12—R. B. Davis. 13—Harry MacLellan. 14—Daniel Ames



The new Oakland eight has the ultra-smooth lines of the modern creation and the latest idea in the way of a double cowl effect

Oakland Reveals Eight Selling at \$1,585

Produced Only in Seven-passenger Form and Is Low and Exceptionally Roomy

THE Oakland Motor Car Co., Pontiac, has fallen in line with an eight-cylinder machine, which is pronounced by the officials of the company as being perhaps the most beautiful yet built by Oakland. The characteristic V-shape radiator with German silver finish has been used, and the slope is from this point back in a practically unbroken line. Although designed for exceptional roominess, the car has not the appearance of weight, and there is a surprising amount of room in the tonneau. The auxiliary tonneau seats are of the disappearing form, folding into the back of the front seat out of the way when not in use. The new Oakland is built only in seven-passenger type at present.

This eight, like other cars of the Oakland make, is carried low to the ground without sacrificing road clearance. The springs have much to do with this feature, the rear set being underslung.

This eight is of the type in which the crankcase is split vertically, each half being cast in unit with one block of cylinders, and the two bolting together to form the complete engine. A stamped oil pan attaches to the bottom; the gearset bolts to the rear of the built-up crankcase, and there is another stamping to adequately house the front driving gears and chain. Removal of the steel oil pan exposes all of the bearings

and the camshaft with its contacting tappets. The left half of the crankcase carries the camshaft and crankshaft, the caps for the bearings facing the other half of the crankcase.

A single camshaft is used, there being a separate cam for each valve. In order to make the valve pockets as short as possible and at the same time use one camshaft, the valves have been inclined to the cylinders sufficiently to bring them out at the bottom and close to the combustion chambers at the top. From an external glance at the engine it would seem impossible for each valve to have its own cam, since the cylinder blocks are directly opposite one another. They are in reality staggered sufficiently to allow sufficient room for the tappets and cams side by side, the offsetting of the cylinders with respect to those on the

In the Northway motor of the Oakland the valves are inclined; there is a single camshaft though each valve has its own actuating cam. The pistons are aluminum

opposite side being done within the castings.

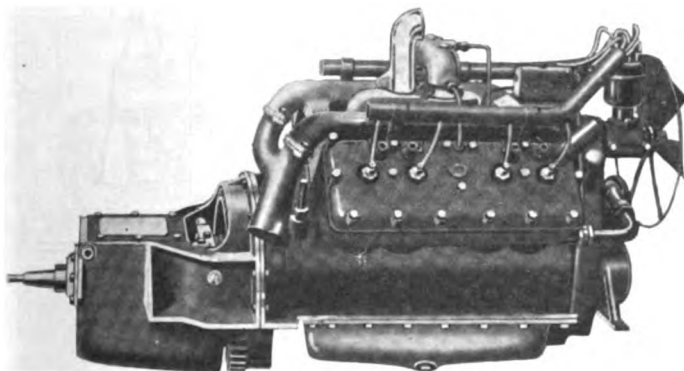
On the outside of the camshaft gear is a sprocket over which a silent chain runs to drive the fan and generator shaft, which is also vertically above the crankshaft and camshaft. The front end of this upper shaft drives the fan; at its center it drives the ignition distributor, and at the rear the generator couples on. The steel cover very neatly encloses the whole driving apparatus, and another housing extends out from the top of it to enclose the small shaft at the top,

OAKLAND EIGHT

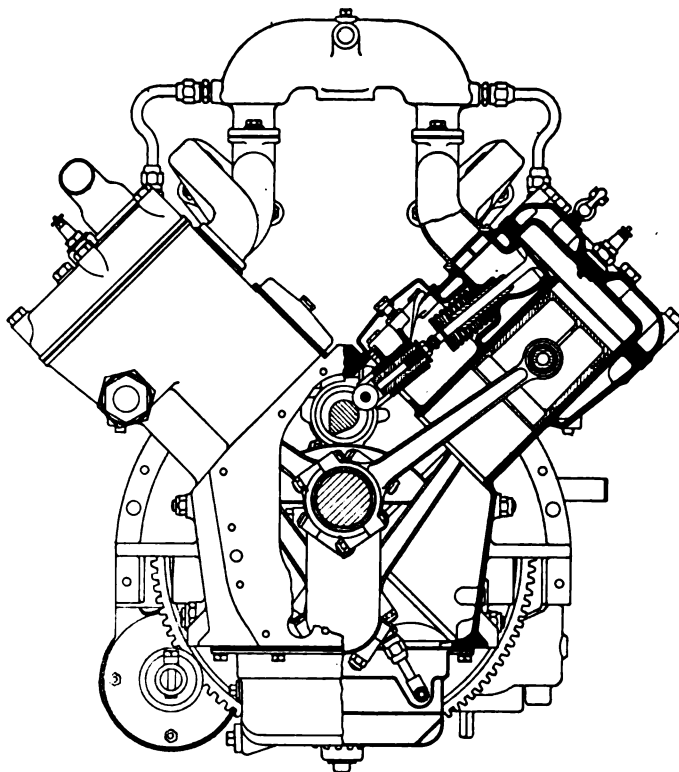
Price, seven-passenger.....	\$1,585
Color	Coach green
Make of motor.....	Northway
Number of cylinders.....	Eight
Shape	L-head
How cast.....	Blocks of four
Bore	3 1/4
Stroke	4 1/2
S. A. E. rating.....	39.22
Ignition	Delco
Carbureter	Stromberg
Starting-lighting	Delco
Clutch	Cone
Gearset	3-speed
Wheelbase	127
Tires	34 x 4 1/2
Make of axle.....	Weston-Mott
Type rear axle.....	Floating
Equipment: windshield, top (one-man type), power tire pump, side curtains, Baker demountable rims (one extra), non-skid rear tires.	

forming a mounting for the distributor at the same time.

A feature of the engine is the counterbalancing of the crankshaft. This is done by forging crescent-shaped counterweights integral with the crank arms, one to counterbalance the weight of each



In appearance, the motor presents a smooth exterior and all the equipment is easily accessible



set of rods. There is a weight protruding from the main bearing end of each arm, making for correct balance of the rotating parts and taking care of the oscillatory effect of the connecting rods.

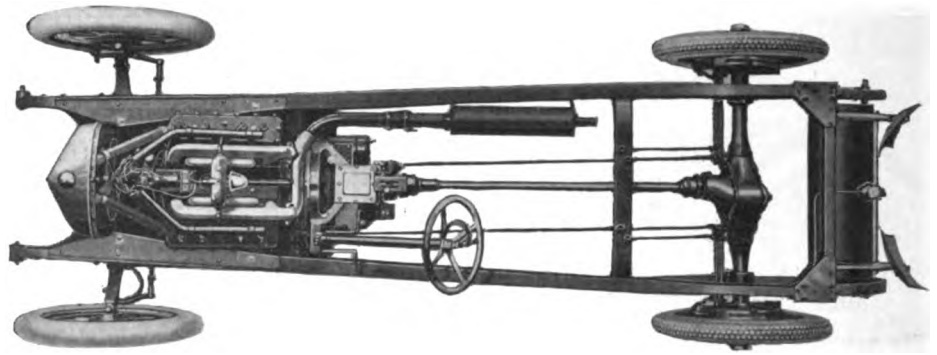
Aluminum pistons are used. Connecting rods are of the forked type, mating with small-end rods on the opposite side. The camshaft is a carbon steel forging, and like the crankshaft, has three bearings. These are of phosphor-bronze. For the sake of balance there are two yoke-end rods on one side and two on the other. The yoked rods have bronze-backed, babbitt-lined bushings, which, besides being clamped in the rod ends are pinned to prevent rotation. The inner rods oscillate on the outside of these bushings, and while the ends of the forked-rods are not adjustable, the inner rods can be adjusted by the use of shims.

Pressure from 30 to 50 lb. per sq. in. is used in the oiling system when the engine is running at high speed. At normal speed it probably rises to about 20 or 20 lb. The pressure is produced by a gear pump on the front end of the crankshaft and housed at the lower part of the timing gearcase. The oil is drawn from the base and then sent through a pressure regulating valve, after which it goes directly to the main bearings. From them it runs to the rod bearings through holes drilled in the webs of the crankshaft. The pressure regulating valve is fitted with a by-pass, and when the pressure for which it is set is reached this by-pass is opened and the overflow runs to the camshaft bearings and to the timing gears and chain. The spray from the connecting rod bearings is thrown up into the cylinders to lubricate the walls and pistons.

The starting motor, which is entirely separate, is hung from a supporting bracket on the right rear of the power plant alongside of the gearset. The starter drives through the flywheel, with the teeth of which the pinion on the end of the starter motor shaft meshes. The Bendix type of connection is used.

Adequate cooling facilities are provided by a double centrifugal water pump on the front end of the camshaft extension and outside of the timing gear housing.

A feature of the new Northway motor in the Oakland eight is that the crankshaft is counterbalanced; accessibility has been well worked out



The chassis of the new Oakland eight is simplicity itself; the propeller shaft is tubular and unenclosed and the drive is on the Hotchkiss plan; spiral bevel gears are used

The fan drive is through a friction clutch on the end of the generator shaft. The fan can be turned by hand, but the clutch has sufficient tension to prevent slippage when the engine is driving it. The center of the fan encloses a coil spring which bears at one end against a plate on the end of the shaft and at the other against the fan, thus making a friction connection.

On the left side of the gearcase is mounted a Stewart single-cylinder tire pump which is driven from the reverse idler gear. It is operated at 2.6 times engine speed.

Six springs equally spaced around the clutch cone hold it in engagement, and there is also a clutch brake to prevent spinning and make for easy gear shifting. The gearset uses ball bearings and the gears are of high carbon chrome-nickel steel. A form of yoke surrounds the flywheel to carry the gearbox, leaving top and bottom of the flywheel exposed for timing purposes, etc.

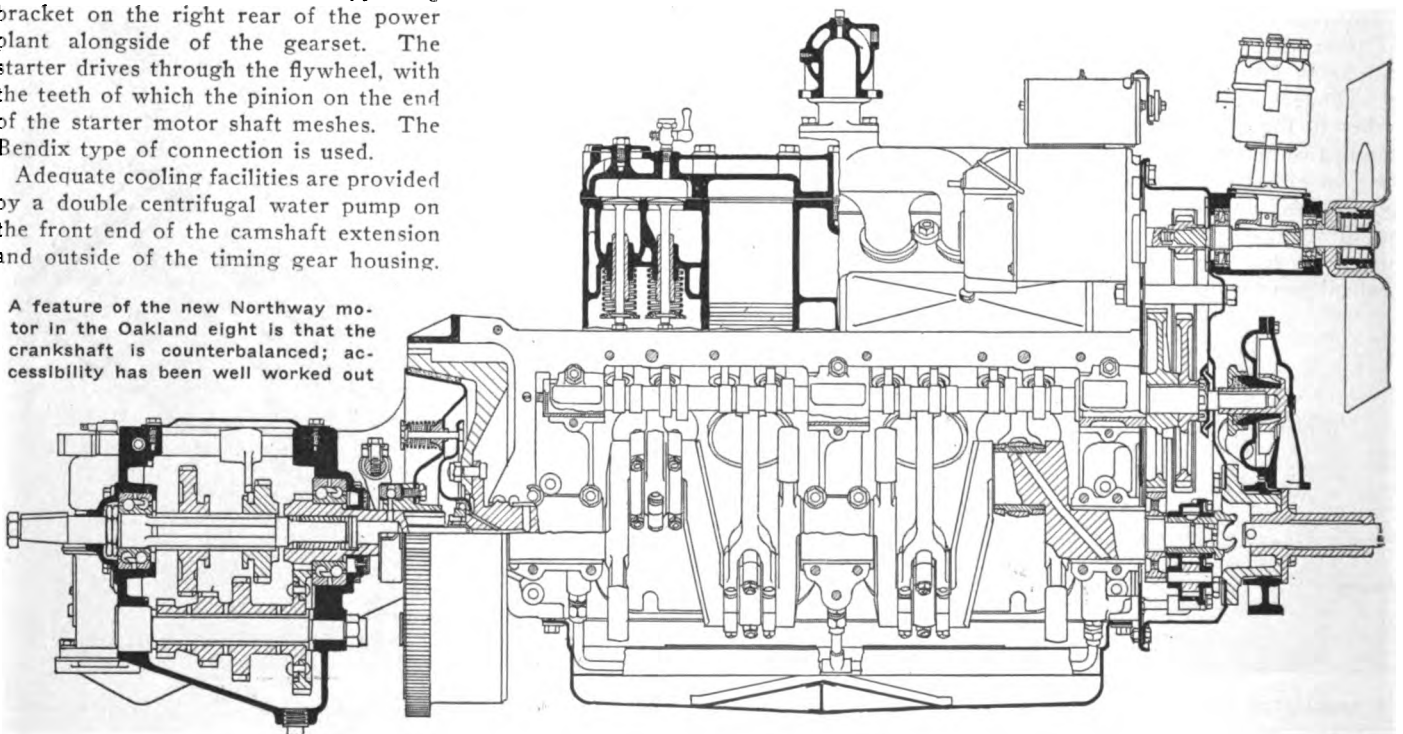
Final drive is made very simple through adherence to the Hotchkiss drive system. The propeller shaft is

tubular and of open construction with a universal at gearbox and axle ends. No torque arms or radius rods are used, but drive and torque are taken through the springs, the master leaf of each rear spring being designed for the service.

Spiral-bevel driving gears are fitted to the rear axle, which is of the one-bearing floating construction. There is a Hyatt roller bearing at each wheel, and the differential unit is carried on Hyatts, with ND ball thrust bearings at either side and ahead of the driving pinion. The axle housing is a strongly proportioned steel pressing, having a large plate at the rear, giving easy access to the differential.

Gas Reaches High Mark in Dallas

DALLAS, October 25—Gasoline is selling for 17 cents per gal. here, an increase of about 50 per cent. Local dealers declare they are compelled to pay the oil companies a higher rate for the commodity. As a result it is rumored that an official investigation will be made at Austin, the Texas capital, at no distant date.



Lack of Firmness a Hole in the Cash Drawer

The Garageman or Dealer Whose Assertion of His Rights Is in a Whisper Is a Long Way from Getting His Rights

By Ray W. Sherman

"WELL, I'll tell you what I'll do," said the young man to Williams, Reilly's service and repair superintendent. "I'll take it up and tell dad about it and if he says all right, why—all right."

"Are you going to pay for the part?"

"No," drawled the boy, "he didn't tell me to."

"Then you'd better leave that part right here, sonny." And Williams took the part out of the hand of the drawing boy and told Tony to put it back in stock.

"A-w-l right," replied the youth, as he moved toward the door with more animation than he had displayed in all his interview.

"Kind o' hard on the kid, aren't you Williams?" questioned Reilly, who had entered just in time to get the ending of the conversation.

"I don't think so; that's what he needs," was the boss repairman's reply. "If more people would hand it to him even stiffer than that the kid and his old man, too, would be better off."

"What's the matter with him?"

"Did you see that part he had?"

"Yes."

"Well, the boy's father has a motor that can use that same size of part, so the old man sends the boy down here after one. I told him how much it was and the boy said his father didn't think it ought to cost that much. I told him that was the price of it, and the kid went home. He said his father said a blacksmith could make one a lot cheaper."

"Then the kid came in again and said his father had sent him after the part. I got it out and the lad started away with it. I asked him what he was going to do with it, and he said his father wanted to see it to make sure it would fit the car. I guess he had been to the blacksmith and found out it was a bigger job than they figured on. Also, the smith probably had to have something for a pattern, so they figured they would borrow the part for that purpose. The

lad started away with it and I just took it away from him and put it back in the stock room. That's all there was to it."

"Quite sufficient to it, I should say. Quite sufficient," was the comment of the car dealer.

"I try never to make myself offensive, Reilly, but there are people with whom you have to use a pretty firm hand. It's the only way you can get along with them and if you do it you generally

"That's one thing it took me a long while to learn," he added. He drew his manicuring machine from his pocket and began a useless labor on his nails. They had been well dolled up the night before and needed it not at all. "I used to think I never must say anything that might give offense to a customer. Gee! But I did some boob tricks in those days. If that kid had come to me when I first started in the business I would have let him have that part and probably would have been carrying it on the books yet—if I ever put it down at all."

"I would have figured that the lad's old man would be sore if I didn't come across with the part, so I would have come across. Then he would have owed me for it so long that he would have dodged me for fear I would dun him for it. And I don't believe I would have dared to dun him, because if I dunned him he certainly never would come around. As it was I would have lost not only the part but a customer."

"This fellow isn't much of a customer," scornfully replied Williams.

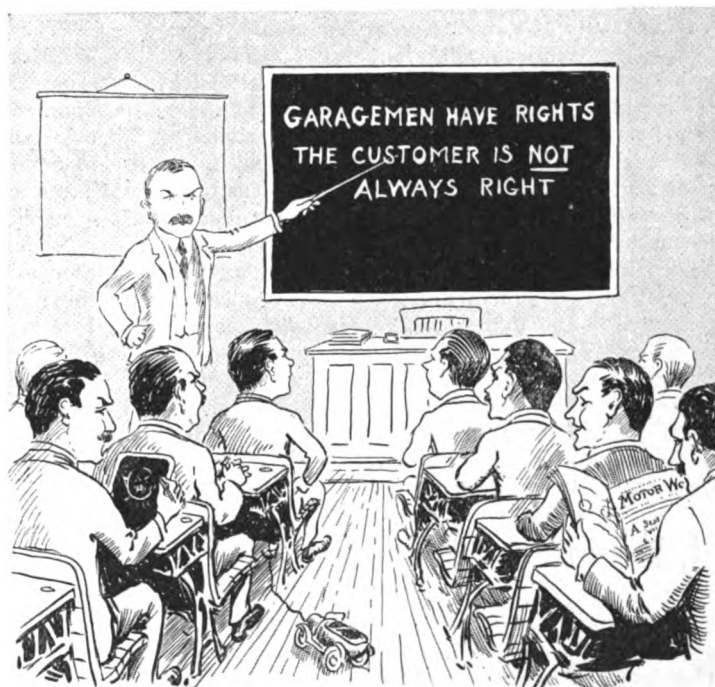
"It doesn't make any difference who he is, Williams. We have rights and we must stand up for them or we won't amount

to as much as a humming bird in a flock of buzzards. This letting the public have its own way isn't all it's cracked up to be."

"I don't know any one who cracks it up," said Williams.

"Guess I didn't mean what I said. What I mean is that there isn't very much in it. Of course, there is reason in all things. If our wealthiest owner comes in here and wants something, or if a customer whose trade is large and who we know is good wants credit, it may be policy to give it. But that doesn't mean that we would play a string of favorites or throw away our profits."

"This failure of a man to believe that he has rights and to stand up for them is responsible for many of the undesir-



"It doesn't make any difference who he is, Williams. We have rights and we must stand up for them or we won't amount to as much as a humming bird in a flock of buzzards"

manage to hold their patronage. There are people who come in here and you might think they would never come again—but they do. Some of them I would just as soon never did come again."

"Well—" said Reilly, smiling, "we don't get many complaints about the way shop customers are being treated."

Got to Be Firm With Some

"I hope not," laughed the repairman. "You've got to be firm with lots of them—with all of them, for that matter," asserted Reilly as he sat down on the edge of a body truck and yawned. Reilly had been banqueting last evening with the leading lights of the town and his eyes and clothes were still smoky and his thoughts slow.

able conditions in the business today. If old Jones comes in here and wants me to shade the price on a car, or throw in a shoe or a tube, I wouldn't even consider him. I would let him know right off the bat where he gets off. Or if he wanted me to throw off on a repair bill, do you suppose I would? I may lose him as a customer, but as a business man I stand clean and with my honest profits. If he wants cut-price stuff he can go where he can get it. He can't get it here." Reilly, with that, hopped off his perch, put his nail clipper in his pocket and dusted his hands one against the other.

"I think, Reilly—" and the words of Williams acted as a detainer—or a retainer, which ever it may be, for Reilly did not go. "I think, Reilly, that there are more failures in the repair and garage business because the owners of the business fail to be firm at the right time. There is more chance in repairing to lose out than in any other thing I ever had anything to do with. Everybody always wants to get the job done for a little less than the repairman can do it for. And they fail to be firm."

"Very true."

"It isn't that the repairman doesn't try to say he won't shade his price. He says he won't but he says it in such a way that the customer knows the repairman is scared when he says it. He sounds like a whisper in a high wind."

"Which is some racket."

"Yes, some racket! Then the customer begins to argue the point, when really there isn't any point to argue. The repairman has done the work and is entitled to a reasonable pay therefor—

which he has charged. But because he fails to be firm he generally winds up by giving the customer part of his profits—"

"Or all of them," interrupted Reilly.

"Yes," added Williams, "and maybe more than that. There are lots of repairmen who will give away the profits and part of their own money because they do not adopt an attitude of firmness in business. They have never learned that the man who is running a legitimate business is entitled to just as much consideration as any other business man. He has just as much right in the business world and is not an under-dog. He doesn't seem to be able to get over that under-dog feeling—and he isn't firm."

"The customer is always right," quoted Reilly.

"That's been revised. Now it's: 'The garageman is always wrong'," shot back Williams.

"Oh, no! Not so bad as that, I guess," replied Reilly, laughing.

"Darned near it, by heck!" insisted Williams.

"This customer-is-always-right stuff doesn't mean what you may think it does. I will admit that a customer is always right, but that doesn't mean that I surrender my rights to him. What it does mean is that I won't argue with my customers and make enemies of them; and if they are of any intelligence they generally can be considered as always right. The man who has any meritorious qualities in his system isn't coming into all the stores in town and asking the firms to throw away their profits. He knows better. He—"

"He does it in garages," insisted Williams.

"He does?"

"You haven't been out here every day for the last five or six years, Reilly; you don't see what happens here. And in garages which aren't service stations I'll bet it's even worse. Why, look here! How do you regard George Moyer?"

"Good man," stated the dealer.

"Well, do you know what he wanted me to do the other day?"

"What?"

"He wanted me to sell him a tire at ten off—that's what he did!"

"He did!"

"He certainly did!"

"Huh!"

"Yes, that's what I say," replied the repairman. "Here's Moyer! Everybody thinks he's an O. K. man, but he comes in here and wants us to give him nearly all our profits."

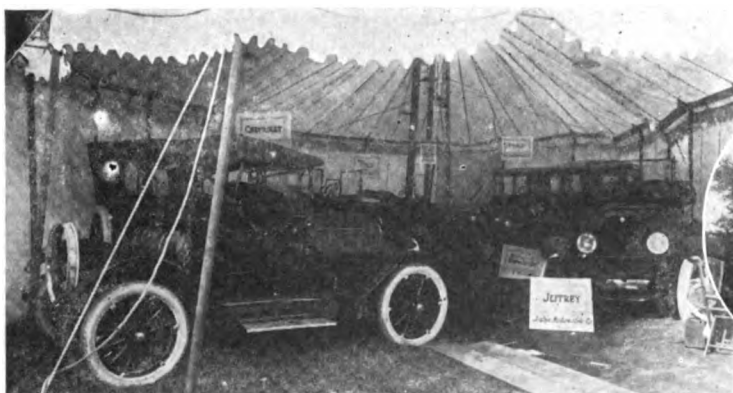
"Huh!"

"That's twice you've huhed," counted Williams. "I'll tell you this garage and repair end of the trade has got to stiffen up and be firm with its customers. The owner has been educated by the garageman himself to expect gentle treatment and a sharing of profits. I suppose the garageman will be held to blame—"

"I don't see that it makes any difference who's to blame," cut in Reilly. "The thing now is to stop it. Send 'em all back to school again."

"Make them all kindergarteners again," said Williams. "The garageman's name as a poor business man, a highwayman and a crook would be wiped out over night if the garagemen would just stand up a little straighter and play right."

How the Rockford Motor Car Dealers Staged Their Show in a Circus Tent



How well a show in tent may be made to appear is shown by these illustrations of the show staged by the Rockford Motor Car Dealers Association in connection with the recent Fall Fair. A single circular tent sufficed to hold all the exhibits, which were arranged in aisles. There was plenty of room all around the exhibits. No admission was charged to the tent; attendance was excellent and the number of prospects obtained promising

Points Every Repairman Should Know— About the Reo

ORDINARILY Reo valves are timed by marks on the flywheel, Fig. 1, as follows: I. O., inlet valve opens; I. C., inlet valve closes; E. O., exhaust opens; E. C., exhaust closes; U. D. C., upper dead center.

With the valves in adjustment, the inlet valve of No. 1 cylinder, for example, should begin to open when the mark I. O. 1 and 4 is at the top. The exact point of opening is determined by the fiber roller on the valve rocker tightening; closing is indicated by its loosening again.

In checking the valve timing, it is well to jot down the openings and closings of the different valves so that after each valve has been tested it can be determined whether the trouble is in the valve mechanism or the setting of the camshaft gear. A variation not to exceed $\frac{1}{2}$ in. either way on the flywheel face from the reference point is allowable, providing the backlash in the valves and tappets is only $\frac{1}{64}$ in.

Should it be necessary to check the marks on the flywheel the actual timing is as follows: Intake opens 17 deg., 46 min. past top center, and closes 36 deg., 25 min. past bottom center; exhaust opens 53 deg., 18 min. before bottom center, and closes 14 deg., 13 min. after top center. Seven degrees is equal to approximately 1 in. on the flywheel surface.

The camshaft driving gear is held to a flange on the camshaft by four studs and by loosening these the position of the gear may be shifted one-quarter revolution. This allows a finer adjustment to be made than is possible by shifting to the next tooth.

To re-time the ignitor, which is part of the generator, rotate the motor until the flywheel mark U. D. C. No. 1 is op-

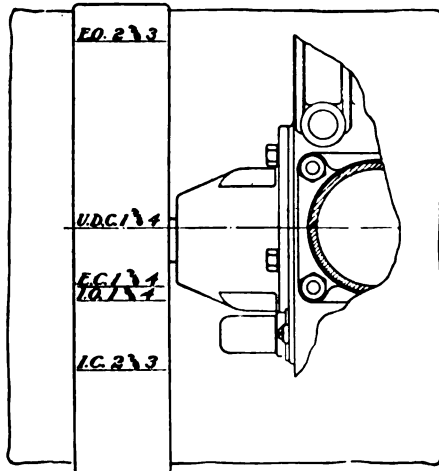


Fig. 1—Markings on the flywheel to indicate the opening and closing of the valves

THIS is the fourth of a series of articles which will appear from week to week on knotty points in the care and repair of the various popular cars.

Although most cars are much the same, there are details on every one that give difficulty to the repairman the first time he encounters them, and it is the object of this series to give enlightenment on these points.

It is suggested that the repairman save these articles so that they can be used as a ready reference when a car with which he is unfamiliar is brought to him for repair. We shall be glad to answer any and all questions pertaining to maintenance.—Editor.

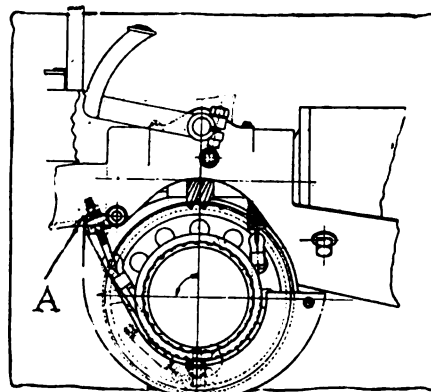


Fig. 2—Starting motor drive showing sheave adjustment at A

posite the reference mark on the crankcase and this cylinder is on its compression stroke. Then press in the timing button at the top of the distributor and turn the armature shaft until the plunger of the button drops into the recess in the distributing gear. The generator is now ready to couple to the motor.

Should it be necessary to remove the starting motor, remove the mud pan and then loosen the three bolts that hold the motor to the chassis. If the starting motor rotates but the engine does not, it is likely that the sheave which engages the starting pawl is loose and requires adjusting by tightening the nut at A, Fig. 2. The generator is removed by taking out three studs which can be reached by removing the mud pan.

If the ammeter does not show charge when the engine is running above cut-out closing speed, it is likely that the generator safety fuse (at the back) is blown, or that the brushes are dirty or sticking. They must move freely in

their slots, and it should be remembered that this machine has three brushes and not two.

There is a charging switch on the generator which should be placed in the off position when the battery is removed and which may be moved from left or right to give a higher or lower charging rate as summer or winter requires.

The removal of the water pump requires that the radiator first be taken off and then the bolts holding the pump may be loosened. In adjusting the packing nut, care must be taken not to get it too tight, as it is likely to spring the pump cover—a slight pressure is all that is necessary. A good packing is candle wicking smeared with white lead. There are three small holes in the packing nut and these should be kept free from dirt, as they prevent water leaking from the pump into the cam gearcase.

Unlike most motors, the Reo main bearings are adjustable from the outside, and it is only necessary to remove the mud pan to reach them. Fig. 3 shows the construction of the bearing. At the right is the position of the socket wrench for adjusting the bearing and at the left the wrench is shown in position for locking the adjustment. In other words, A are merely spacing sleeves and B are the locking studs. Only take up the bearings until the shaft turns a little bit hard.

The connecting rod bearings are adjusted through the handholes in the side of the crankcase. Hinged connecting rod ends are used.

The motor should consume 1 qt. of

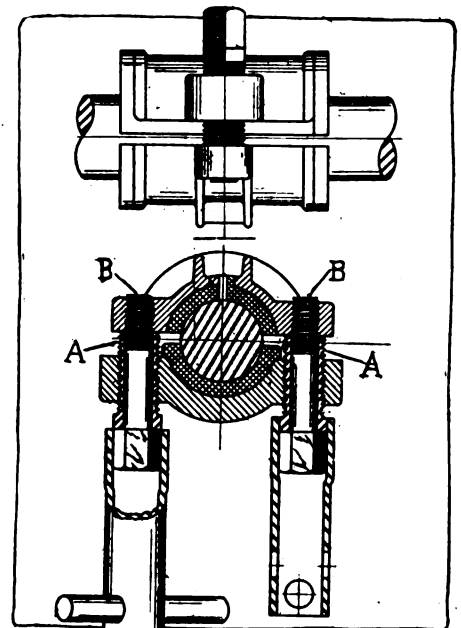


Fig. 3—Main bearing adjustment

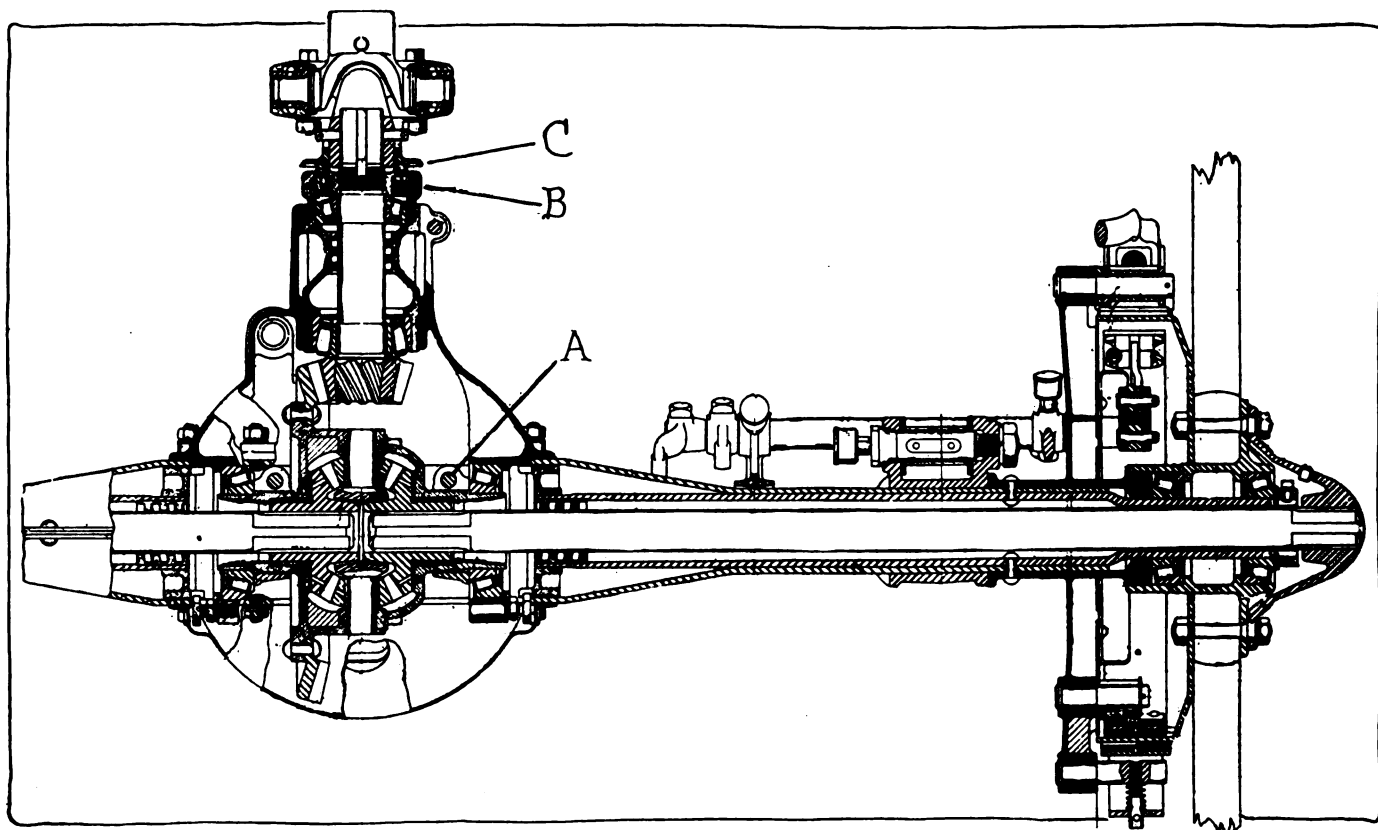


Fig. 4—Rear axle showing pinion adjustment at B, and bearing adjustments at A and C

oil for each 75 to 100 miles. There is an oil indicator to show how much oil there is in the reservoir right beside the filler. Should this register incorrectly the float arm may be bent, Fig. 7. The oil used should have about the following specifications:

Specific gravity at 60 deg.	.8965
Deg. Beaume	31
Flash point	432 deg. Fahr.
Fire point	480 deg. Fahr.
Viscosity at 70 deg. Fahr.	200
Viscosity at 212 deg. Fahr.	93

The inlet valve rollers and felt oil retainers should have a few drops of oil every 100 to 200 miles. The fan bearings should be filled with as heavy grease as can be handled in a grease gun every 500 miles or about once a month. There is an oiler at each end of the electric generator which requires three or four drops of oil every 1,000 miles. The universal between clutch and gearset is oiled through two holes in the universal shaft. As heavy a grease as can be handled in a grease gun is used. The hole nearest the clutch also oils the end of the crankshaft supporting the clutch and must be refilled each 500 miles.

The lubricating system is a combination splash and force-feed. A plunger pump, Fig. 5, driven from an eccentric on the camshaft delivers the oil through pipes to the three main bearings and to the face of the cam gears. The pump is adjustable and normally the piston head should be $\frac{3}{32}$ in. below the lower edge of the suction holes when it is at the bottom of the stroke. The pump

is adjusted by removing the pin A and the connecting rod B and then screwing the member C up or down, the latter increasing the quantity of oil fed.

The pump may be removed without disturbing any other part of the motor. The connecting rod is first disconnected as just described by reaching in through one of the handhole plates on the side, and then the cap D is unscrewed and the pump is pulled out.

The clutch is an asbestos-faced multiple disk and requires no oil. If it becomes dirty it should be cleaned by put-

ting two or three teaspoonfuls of kerosene in the housing through a plugged hole in the casing. Engagement is effected through three springs A, Fig. 6, which should be adjusted just enough so that the clutch does not slip. All three should be adjusted the same amount. Usually the adjustment should be such that the spring cups B project from the flywheel casing $\frac{1}{8}$ in.

The clutch opening fingers should bear equally against the clutch relief collar. If one finger bears more heavily than another the clutch will have a tendency to bind and will not come to a stop quickly.

The pinion on the rear axle, Fig. 4, is adjusted by screwing in the member B; bearing adjustment is accomplished through C and the alignment of the ring gear is shifted from one side to the other by turning the adjusting collars at A.

The truss rods should only have enough tension to keep them from rattling when the car is empty; much more than this will throw the axle out of line.

In adjusting the brakes first see that both pedals are as far toward the driver as their slots will allow. When they are in this position the rods running to the equalizing links should be of such length as to allow the pedal to be pushed forward as far as the slots will permit before the equalizing link strikes the cross bar of the rear end of the sub-frame. The next step is to push the pedals as far ahead as possible and if they strike the end of the slots before properly applying the brakes, shorten the

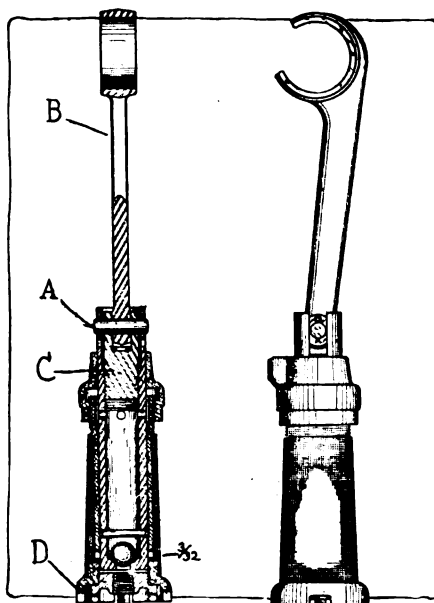
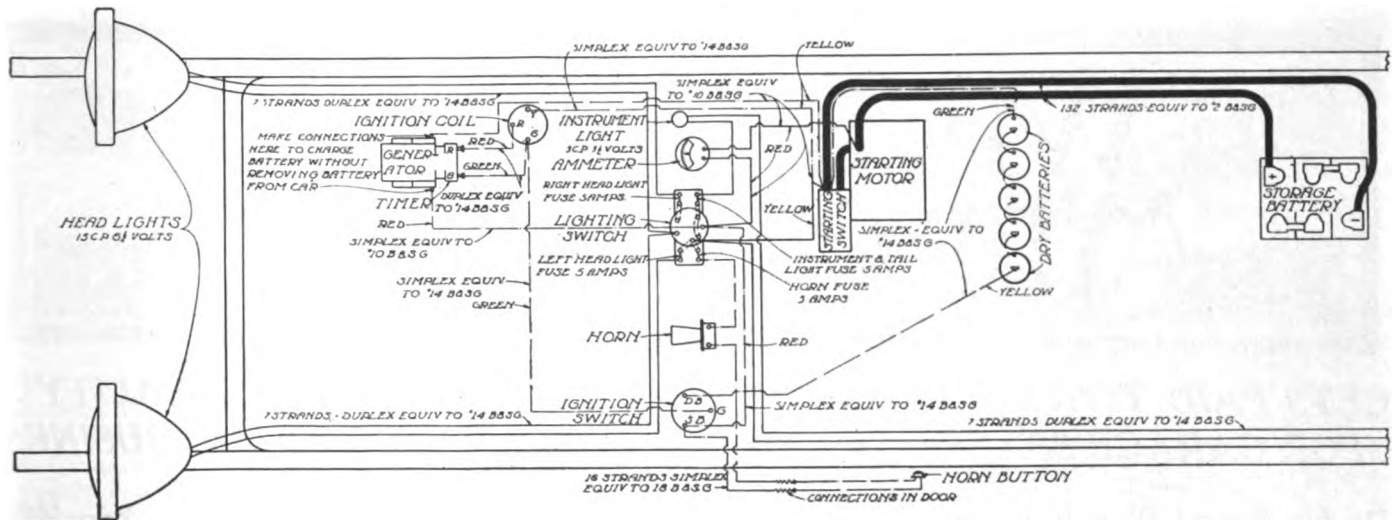


Fig. 5—Oil pump showing adjustable member C and removable cap D



Wiring diagram showing complete connections for starting, lighting and ignition. Grounded circuits are dotted

cables. This is done by taking out the pins connecting the cable to the lever arm on the rear axle and turning up the threaded connection on the cable end as far as necessary.

The roller which takes the thrust of the rack of the steering gear must be free and well lubricated at all times. The roller is held in engagement by a spring which is backed by a nut which may be screwed in as the rack and pinion wear. The pinion may be adjusted by loosening the locking bolt just above it on the steering post and then obtaining the proper adjustment by pushing the shaft by hand.

Removing Mud From Car

In removing mud from the body use plenty of fresh, clean water, run down in an easy volume over the finish. Continue this practically until the dirt-encrusted surface is thoroughly soaked up. Then let the work stand for 15 or 20 minutes for the water to so act on the body of dirt and mud that under a fresh flow of water it will freely run away without injury to the finish.

The mud and dirt should be floated off by a natural flow of water rather than wiped off. This latter practice usually results in the finish being scratched and disfigured by coarse grit and dirt. Even a water-loaded wool sponge drawn or rubbed over a dirty or mud-spattered panel develops a scouring effect, diminishes the brilliancy of the varnish and reduces its capacity for protecting the undercoats.

After concluding this first or preliminary washing of the surface a new sponge should be taken in hand and the surface again washed with a fresh supply of clean water. A soft wash brush, oval in form, and chisel pointed should be used to tool around surface ornaments, moldings, panel corners and other attached body fixtures. Such places cannot be effectively reached with the sponge.

Use the same care and precautions in

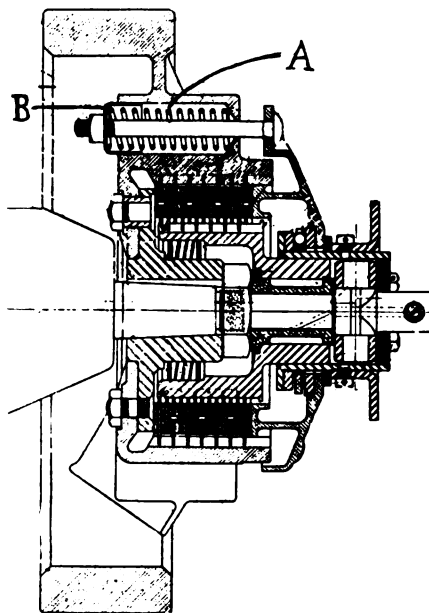


Fig. 6—Asbestos-faced disk clutch

washing the chassis, and under no circumstances employ for the chassis the tools used in washing the car body, and vice versa. In this way avoid transferring grease and oily stains from one part of the car to another.

Directions for Cleaning Top

Before commencing washing operations the top should receive attention. Leather and rubber tops should be sponged off with clean tepid water, and when somewhat coated with road dust, or mud, this water should contain enough castile soap to cleanse the surface. Follow this cleaning by drying the leather or rubber with a wash leather specially kept for this purpose. If the top is of Pantasote it should receive practically the same washing methods as the leather or rubber. The ordinary cleaning for a genuine mohair top consists of good brushing with a whisk broom. In case the top is too dirty to respond to this treatment it may be washed with a moderate solution of castile soap and water.

Genuine mohair tops made with a rubber interlining should under no circumstances be cleaned with gasoline, kerosene, benzine or any other by-products of petroleum. In fact, no dissolving medium containing properties destructive to the rubbed interlining should be employed in the cleaning of mohair tops.

Drying the Body and Chassis

For drying off the water from the body or chassis use a wash leather, or chamois skin, so-called, entirely free from lint, and absolutely clean. Wring the skin after rinsing in clean water, or, if dirty, after washing out in a solution of soft water and castile soap, and beginning at the part of the car first washed proceed to pass the skin over the surface with just sufficient pressure to take up all the water with the exception of a mist, which in the air will very quickly evaporate.

To attempt to wipe the car perfectly dry in all parts will result in injury to the luster of the finish. An erosive effect on the surface can be produced under the pressure of wash leather and this effect in washing the car must at all times be avoided.

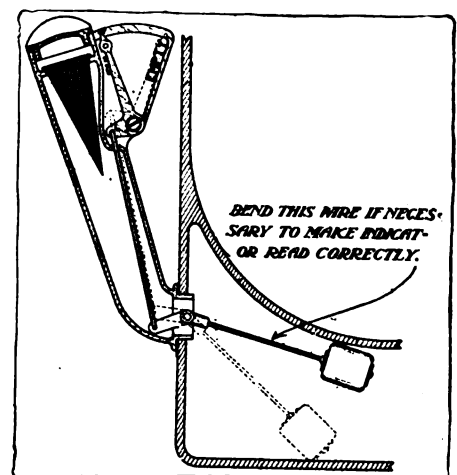


Fig. 7—Oil Indicator. The needle may be corrected by bending the float arm one way or the other

WIDE-AWAKE MERCHANDISING

GETS PAID TWICE FOR GARAGE SPACE

Double Rental Plan Increases Income \$2.50 a Month a Car

Space has been studied in the new garage of the Pence Automobile Co., Minneapolis. The regular monthly rate is \$13.50, which is for space only. The man who wants daytime downtown storage may get a space from 8 a. m. to 6 p. m., Sundays and holidays excluded, for \$6 a month. The same space is then rented from 6 p. m. to 8 a. m. and on Sundays and holidays for \$10. This double rental brings in \$2.50 a month more than the straight 24-hour rental.

There is also this schedule:

Avoids Rate Disputes

1—6 a. m. to 7 p. m.....	50c
2—6 a. m. to midnight.....	75c
3—6 a. m. to 10 a. m. next day.....	\$1.00
4—6 p. m. to 10 a. m. next day.....	50c
5—6 p. m. to noon next day.....	75c
6—6 a. m. to 6 a. m.....	\$1.00
7—6 p. m. to 6 p. m.....	\$1.00
Washing and polishing, \$1 and up.	

This covers the general storage situation and there can be no dispute or guesswork, for the schedule is in plain sight on the wall. The garage has room on the first floor for 108 and 160 on the second. During fair week 1,300 were cared for.

COULD MAKE A REPAIR BUT WOULDN'T

"Don't try to straighten that differential gear," said the boss; "put in a new one."

"But the owner don't want to go to the expense of a new one," objected the mechanic.

"Can't help it," returned the proprietor, "we can't stand for work like that. Where is the owner?"

When Straight Talk Pays

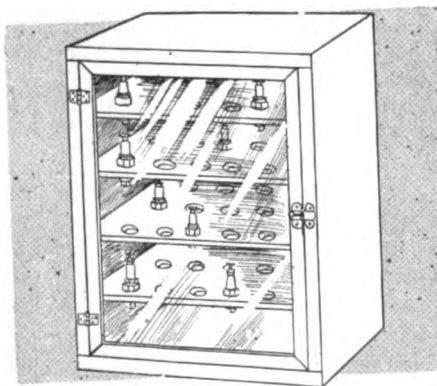
The proprietor explained to the owner of the car that to attempt to straighten the gear would be folly, because, although a fair job might be done, the rear axle would always be noisy, the gears and bearings would wear rapidly, and in the end the repairman would be blamed

for the trouble and expense resulting. "Now if you won't pay for that gear I'll give it to you, because I can't afford to let a job go out of my shop like that," concluded the proprietor. The result was that the owner purchased a new gear.

This incident shows that foresight is often necessary to prevent the loss of a customer, or several customers, possibly; it pays to talk straight out.

MAKING THE EMPLOYEE'S TIME PAY

"We always have on or two wrecked chassis in our shop in the process of rebuilding," says G. O. Reynolds, New Rochelle, N. Y., "so that should any of the workmen have time to spare he can put it in on these cars. Usually these cars are fire wrecks and are bought for a very small amount. They require not only overhauling but new bodies, fenders, etc., and this means that there is work for all; mechanics, blacksmiths, wheelwrights, metal workers, painters, body builders and all can work on these machines when things are slack. We do not try to make anything on these cars, but they prevent us from losing money on employees' time that would otherwise be wasted.



SIMPLE PLUG DISPLAY

A good method of spark plug display is the one shown herewith. A cabinet with a glass front has three or four shelves with holes bored in it to receive the lower ends of the spark plugs. This method of arrangement is very convenient and at the same time is a neat and attractive method of display.—H. Johnson, New York.

THE PERSONALITY OF YOUR BUSINESS

It Means Much to You What Impression It Makes

After all, a business is a great deal like a human being, and the problem is always to give the business a favorable personality. Just as the man with an attractive personality makes many friends, so the business with such a personality also makes friends, and this draws trade.

The personality of a business has to do with the features that impress the customers or prospectives. It may be, broadly, the condition of the store, whether it is dirty or shining, whether the windows are attractively dressed and frequently changed; it may be the atmosphere in the store, the courtesy of the clerks, the promptness of the service, the quality of the goods. In short, all the human senses are receiving favorable or unfavorable impressions of the store's personality.

The store with an attractive personality is the one that a person looks forward to passing, to see what is in the window to admire, and perhaps buy. It is the one that it is a pleasure to go into and the one that the customer unconsciously regrets to leave. Neither his clothes nor his peace of mind have been soiled.

CAR RENTALS GROW INTO CAR SALES

There is a garageman in a Connecticut city who has an unusual method of gaining prospects for new cars. Each season he purchases outright a new limousine. He then advertises in the local paper for some one who wants to rent such a car, the rental to include gasoline, oil, storage, tires and all repairs. For this he charges a flat rate of \$400 a month, this including the services of a chauffeur. In fact, the person who rents the car virtually owns it. He finds that after a person has rented a car in this way, he becomes an excellent prospect for a car of his own. He has made several sales as a result.

SERVICE

That Is Not Always Plain

A Man Kicked But the Garage man Knew What to Say

"When on a tour not long ago," said a motorist to the Motor World Road Man, "I stopped at a garage for a few little things, and fortunately I was just in time to hear a very interesting argument between the proprietor and a customer regarding service. The latter was objecting to paying 70 cents per hr. for work done to his car and also was complaining about the high price of repair parts. Evidently the subject had been on his mind for some time, for he was not objecting to any particular charge, but just to the principle of the thing. Neither was he heated—he was merely trying to prove to the garageman that his prices were too high—a conclusion that he had long ago reached.

A \$4 Profit

"You get \$6.30 a day for the labor of each mechanic," continued the customer, "and at least half of that is profit. You charged me \$5 for a new gear last time I had my car in here, and as near as I can figure you must have made about \$4 on it. I didn't say anything about it at the time because I was busy and there didn't seem to be any use anyhow. But I would like to make money as easily as that."

The garageman smiled the old familiar smile, for he had heard that little story so many times before, and then he began: "You are just like all the rest of them; you jump at conclusions too quickly. In the first place you talk about the pile of money I am making, but do you see any evidences of wealth? Now, the charges you are kicking about are for service, and don't forget that. Service of the highest order, the kind of service you can't get any place else in the county. Service that is worth what I ask for it and a whole lot more. Service that you would call cheap at twice the price if you could not get it for less; and when I show you this matter in its true light you will agree with me.

Quick Service Costly

"You are a very busy man," he continued, "and it is hard for you to do without your car for more than an hour or so at a time. When anything is the matter you want it fixed in a hurry, and you know that sometimes we have given you two or three men, just to get your car out on time.

"That is service. No matter when you bring your car in there is always somebody to start work on it immediately; in other words, I keep a little more help than I need so that quick service can be given. This costs money, for some of the time the extra man is idle. That is one of the reasons I have to charge 70 cents.

"Another reason is that all my men are experts; there is not a cheap man in the shop; every one can be trusted to do good work, and every one is enthusiastic. This means that they are paid high wages. That's why my shop has the reputation of turning out cars that never come back. When a car is turned over to the owner, we know that it is all right; there is no guesswork about it. This is service that means dollars to the owner, and to give it we must charge a little more per hour than the other fellow. I guess you will recall the time you had your car overhauled at So-and-So's, and after you had gone a few miles the magneto gear slipped and you had to be towed in? How much did that cost you?

Overhead Eats Profits

"Furthermore, I only made a fair profit on that gear you mentioned. You see, I have been carrying that in stock for three years just to be able to give instant service to the first man that came in with that gear broken, and you were the first. All this time I have had my money tied up in that gear and it has been taking up valuable space in my stock room, so the \$5 charge just barely lets me out. Now if you had gone to some other agent for this car, probably your machine would have been held up for two weeks while he sent for a new gear. True, you might have saved \$2 on the price of the gear, but I believe that quick service is well worth the \$2, and in your particular case many times this amount."

MERCHANDISING IDEAS ARE ADAPTABLE

In New York there is a chain of grocery stores and this chain is steadily growing in length primarily because of the excellent service it gives its customers, the courtesy with which they are always greeted and its up-to-date merchandising.

At regular intervals, the manager sends one of the clerks through a residential section where the company has not much trade. This clerk is on what insurance men call a "straight canvass" for new trade.

If the lady is out, the clerk leaves a card and on the back of the card he writes: "The Blank store will appreciate your patronage. If when you call at the store you will present this card to the manager he will do everything in his power to ensure your satisfaction."

ALERTNESS NEEDED IN SUPPLY TRADE

Successful Dealer Is Always Watching for New Things

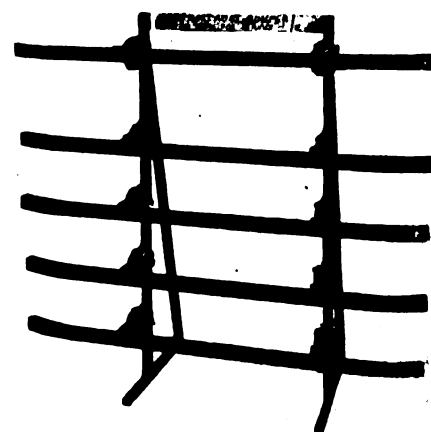
The wideawake accessory dealer is always alert for a new line with money making possibilities in it. For this reason all accessory descriptions and ads should not only be read but each time a few moments of thought should be given to determine whether money might be made by handling the article in question.

Hadn't Thought Much

"Got any of those glare preventers I saw advertised the other day?" said a customer to the stock clerk in a certain store the Roadman was in recently. "No," replied the clerk. "Those are no good. Nobody would buy them." The proprietor happened to overhear the conversation and came forward to investigate. He was the kind that never took anybody else's word for a thing, and when the clerk was questioned closely he really could give no good reason for not having this particular device in stock. The trouble was he had not thought very much about it. As a result six dozen were ordered and sold in two months' time.

DISPLAY HELPS FOR THE DEALER

There are many devices which are supplied by accessory manufacturers to their dealers for the better display of merchandise. One is illustrated herewith. Manufacturers who supply these devices are urged to forward photographs or sketches of them.



Very few cars come from the factory equipped with a bumper; from which it is a simple matter to deduce that there must be a good market for bumpers. In this field as in others, good display is absolutely essential for good sales. Illustrated herewith is a simple, thoroughly serviceable bumper stand which is furnished to dealers who order one dozen bumpers by the L. P. Halladay Co., Streator, Ill.

Eights, Knights and Twelves

These Are What the Farmers of the Northwest Are Buying—And They Know Why They Want Them, Too

By Ray W. Sherman

MINNEAPOLIS, October 23—The city man is supposed to be the first to take up with new things. The country man is supposed to follow in the wake of the city man, to imitate him and be slower to grasp the new.

In the motor car industry the new things today are eights, twelves and the Willys-Knight sleeve-valve-motored car. And according to the time-worn supposition—which has been all shot to pieces within the last few years—the city man should be the buyer of these new things.

He may be—in some sections—but in the northwest the farmer is buying Knights, eights and twelves, and never seems to stop to consider that in so doing he is breaking all the rules of precedent.

The interesting phase of the situation is not so much in what the farmer is doing, as in what the dealer and distributor are able to do. These new products, until recently unknown, are being marketed with ease and facility in a section where the bulk of the wealth comes from the soil. With thousands of farmer buyers it might naturally be expected that it would not be so easy to sell eights, twelves and Knights as to sell fours and sixes, things which the farmer has had or seen before and with which he is familiar.

Names That Mean Sales

It really is a situation for which there must be causes, and for it there are several. One is that the producers of the cars have made names for themselves. Regardless of what the maker offers, the farmer has confidence in him. Cadillac has always given a good car. Therefore the Cadillac eight must be a good car.

Packard has a time-made reputation. Therefore when Packard sells a twelve it must be a safe investment. Every one knows John Willys and the Overland company, so if they "tell us we will find satisfaction in a Knight-motored car" it must be true.

Another reason is confidence in the dealers and distributors. Bowman & Libby, Inc., has been here a long time and has stood with credit behind a good line of cars. Therefore, if we buy a Bowman & Libby car—which is the Overland and its Knight mate—we are assured of a square deal. The Joy brothers have built their business upon the Packard and their clientele believes in them, and so with the Cadillac. R.

This is the fifth of a series of analytical articles by Ray W. Sherman, who is at present in the great Northwest territory.—Editor.

W. Munzer, of the King eight, says this is one of the principal reasons, for Munzer formerly handled another car and but recently took on the King. And still, with a new car and a new type of car at that, his company is doing business.

Farmer Strictly Up-to-Date

A third reason is that the farmer of the northwest is not the farmer of the Slow Train Through Arkansas and the Hogwallow Kentuckian. He is a new and up-to-date agriculturist. He thinks for himself. He reads. He is posted on current events. He investigates and buys upon his own judgment. The farmers this year are long on both wheat and judgment. The judgment tells them what to buy and the wheat is buying it.

"You can go all through this section of the country," said W. J. Bowman, president of the Overland outfit, "and you will find that the farmer is just as up-to-date as the city man in many respects. He has rural free mail delivery and gets the city papers every day. He takes magazines, farm papers, motor-ing papers and reads extensively.

They Learn from Advertising

"He is educated to an extent that did not prevail some years back. If he is of an older generation which did not for some reason have all the educational advantages that might be desired, he has remedied this need by reading books and magazines in his later years. The country mail system has done a lot in this respect.

"Therefore, when the Willys-Overland company began its campaign of advertising on the Knight-motored car, the farmer followed it. From his reading he probably knew all about the Knight type of motor before. His newspapers and motoring papers told him that. And therefore when the Knight was put within his reach he didn't need to be told much about it. He had studied the thing out before.

"We have sold one hundred and forty-four Knight cars in Minnesota so far—and we could have sold two hundred and fifty-four if we could have secured them."

Bowman & Libby, Inc., will put about 5,000 cars into Minnesota this year, and many of them will be Knights.

There is little real opposition that can be advanced to such a construction as the twelve, according to Charles P. Joy, of the Joy Bros. Motor Car Co., Packard distributor. Any objection is unfounded, he states, and is easily overcome, so the man who has thought of buying a twelve and who has hesitated because the number of cylinders sounds formidable is easily won over.

The Joy brothers had one prospect who wanted a Packard twelve, but the chauffeur was "pulling" for another make of car. The chauffeur's word—as is not unusual—seemed to have weight with the prospect.

"You can handle a six all right, can't you?" asked Joy.

The chauffeur, who was then driving a six, was obliged to admit that he could.

"Look here!" said Joy, going to a twelve. "See this!" He unhooked a wire from one side of the motor. "There's nothing but a six now. You can take care of a six, can't you?"

"Yes," was the forced admission.

A Chauffeur Easily Won

"All right." Joy hooked up that side and unhooked the other. "And here's another six. That's all it is. You can take care of that, can't you?"

The chauffeur admitted that he could and that ended his opposition to a twelve.

The Jackson Motor Co. has the Jackson and Hollier, two eights. N. S. Davis, of this company, says there seems to be no difficulty whatever in marketing these double-four-motored cars. It all seems to be a question of a reliable car, a reliable dealer, and a motor-wise farmer. All three—and the factory, of course—are making a market for these new things.

Not all the eights and twelves are being sold in this territory, however, because there have thus far been few of some of them to sell. In the Motor World Guide of September 29 there were listed 17 eights and 5 twelves. They are: Eights — Abbott, Apperson, Briscoe, Cadillac, Cole, Detroit, Hollier, Jackson, King, Marion, Mitchell, Monarch, Oldsmobile, Regal, Remington, Ross and Standard.

Twelves—Enger, H. A. L., National, Packard and Pathfinder.

Many of these, as is well known, have not progressed very far so far as production is concerned, especially production which would go very far in this territory. And some of the cars are not represented here at all. The fact remains that the car which is at all known and known to be good, which is well represented and obtainable from the factory, can be and is being sold in the northwest to the farmer, whether it be eight, twelve or Knight.

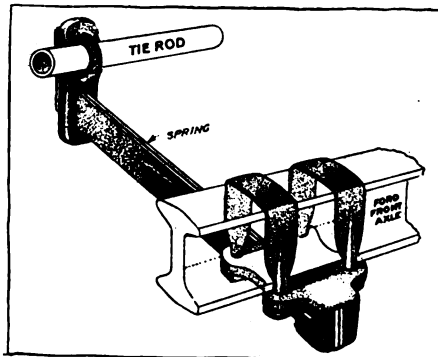


ACCESSORIES & SUPPLIES :

STEERING DEVICE FOR FORDS

White Mfg. Co., 713-715 Main street, Cincinnati. PRICE, \$3.

A double-leaf flat spring is clipped to the front axle and extends backward, at right angles to the axle, to a clip attached to the tie-rod of the steering gear. The tendency of the spring is to bring the wheels back to a straight line when they are deflected by inequalities of the road. The makers state that if any part should break while on the road no harm can result, the steering gear merely going back to its original condition. The device can be attached in a few minutes without machine work or drilling, the only tool needed being a wrench.

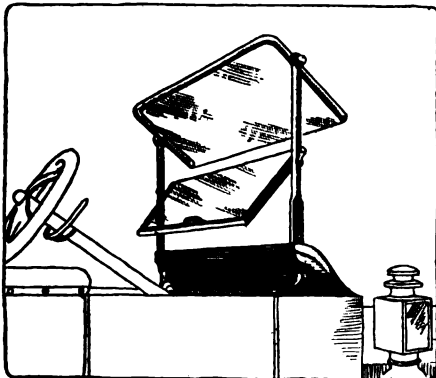


White spring steering device

VANGUARD FORD WINDSHIELD

Vanguard Mfg. Co., Detroit. PRICE, \$15. DEALERS, \$10.50.

A special windshield and cowl combined are supplied for Fords with



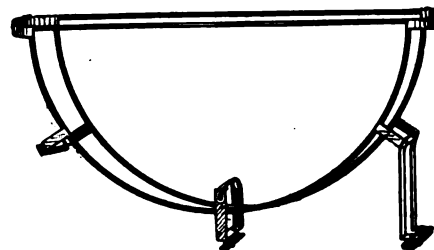
Vanguard windshield and cowl for Fords

straight dash bodies; two sizes are made, one 42 in. in width for the 1913 car, and one 40 in. in width for the 1914 car. The shield is of the rain-vision ventilating type and both upper and lower halves are adjustable; the upper half locks automatically in any position. There is a weather-proof rubber strip at the bottom. The steel cowl and other metal parts are finished in black enamel with nickel trimmings.

ACCELERATOR FOR FORDS

Will A. Sapp, Elgin, Neb. PRICE, \$1.65.

A foot accelerator attachable to the Ford without machine work or fitting. The foot-piece is attached to the top of the gearcase by two of the screws that



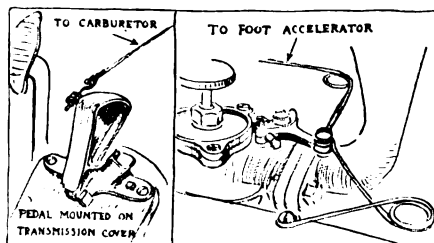
McKinnon runningboard tire holder

hold the cover, and connection with the throttle is made through a wire cable. A spring returns the throttle when the pressure of the foot is removed. The device does not interfere with the use of the hand throttle. The outfit weighs less than 1 lb. and can be installed in a short time.

LIQUID LUSTRO OIL

Kenny & Moore, 133 West 52nd street, New York. PRICE, 6-oz. bottle or 8-oz. can, 25 cents; pint cans, 45 cents; quart can, 85 cents. DEALERS, small bottle or can, 15 cents; pint can, 29 cents; quart can, 52 cents.

This is a body polish intended to prevent the drying and cracking of varnish and to neutralize the effects of alkaline soaps used in washing. The makers state that it will not harm the most delicate



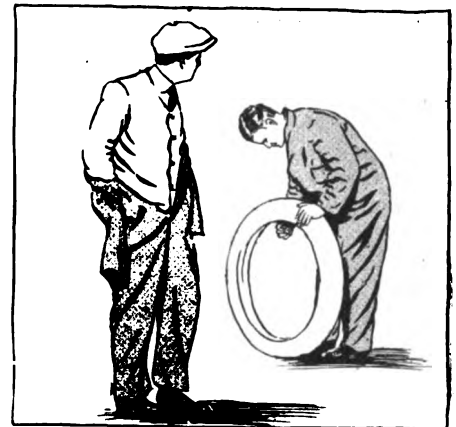
Sapp's accelerator for Fords

ornamental work, such as crests and monograms.

McKINNON TIRE HOLDER

McKinnon Dash Co., Buffalo.

These tire holders are made for one and two tires. They are attached to the runningboard and fender at the right of the front seat. Can be used for smooth or non-skid tires, with or without covers, and for detachable rims. A locking device is provided to prevent theft of tires, and is supplied with the holder without extra charge. The material used is stiff steel and the various parts are strongly united by means of electrical welding. There are three attaching brackets, two of which are screwed to the runningboard while the third goes on the front fender.



Shanhouse overall motor suit

SHANHOUSE MOTOR SUIT

W. Shanhouse & Sons, Rockford, Ill. Price, \$2.50. DEALERS, \$16.50 per dozen.

A one-piece slip-over suit of olive khaki, designed to protect the clothing when working about the car. It can be donned quickly and easily and covers the clothing completely. The one-piece feature has the advantage that there are no flapping corners to catch or get in the way. The material used is sufficiently substantial to give good wear.

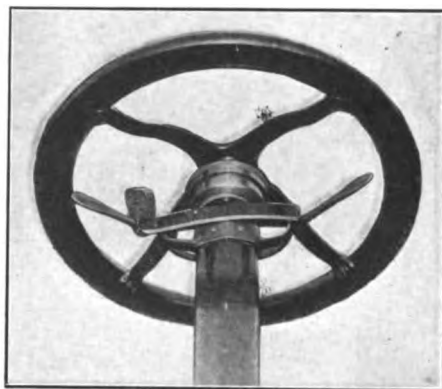
Scientific Selling

Page 11

FORD STEERING WHEEL LOCK

Safety Lock Co., Locke, N. Y. PRICE, 50 cents.

This is a lock which secures the gas and spark levers on the Ford steering wheel and prevents their moving until the lock is removed. One end of the lock is slipped over one of the levers and the padlock is locked over the other. It does not matter which lever it is first applied to. Two keys are furnished with each lock and no two locks are alike. One of the advantages of the device is that in case of fire or other emergency the car can be pushed around with the lock in place.

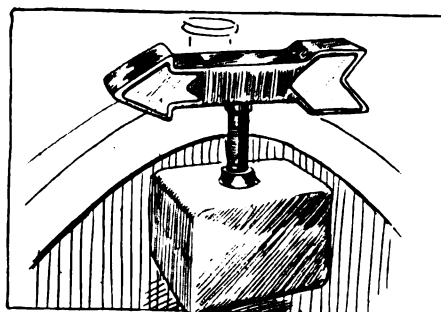


Lock for Ford control levers

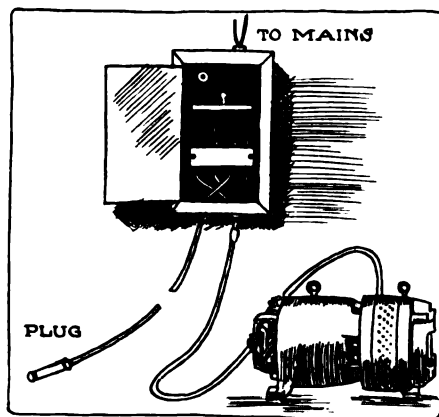
AUTO ARROW SIGNAL

Auto Arrow Signal Co., 4628 Olive street, St. Louis.

Two signal boxes are placed on the car, one in front at the radiator and the other in any desired place at the rear; the boxes contain electrical operating mechanism and each is surmounted by a large arrow. The arrow for the front of the car is 8 in. long and that for the rear 6½ in. long, and both are finished in nickel. Miniature electric bulbs inside the arrows illuminate them at night. Three controlling buttons are mounted on the steering wheel; pressing the left button causes both arrows to point to the left and the right button turns them in the opposite direction. The middle button turns them straight ahead. In any position they are automatically held locked and will not jar out of position. There is also a disk at the rear of the car, illuminated by a small lamp. When the brake is applied the disk turns toward the rear and shows the word "Stop." It returns automatically to neutral position when the brake is released. The outfit can be purchased complete or either front or rear system separately. The small amount of current required is supplied by the regular car battery or dry cells may be used.



Electric direction signal



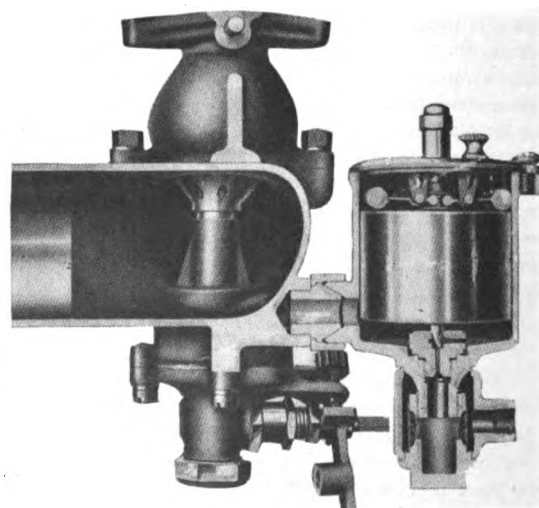
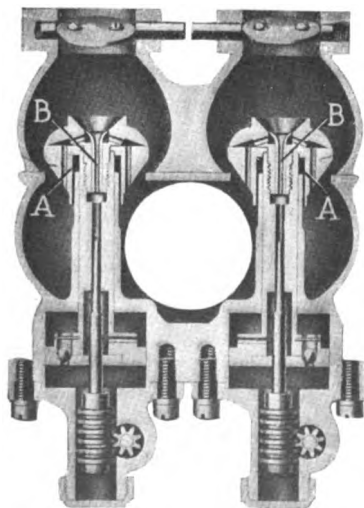
Milburn charger for car batteries

STEWART DUPLEX CARBURETER

Detroit Lubricator Co., Detroit.

This carbureter is designed especially to meet the requirements of eight- and twelve-cylinder motors and is in reality a double carbureter. The essential elements, such as metering pins, metering valves, mixing chambers, throttles and adjustments, are all separate. In order to obtain uniform results in both sides the throttle and adjustment can be synchronized. Only the float bowl, constant level valve and air intake are used in common.

With the motor at rest the main air passages are closed because the air valves A rest on their seats. As soon as the engine starts to rotate a vacuum is formed, lifting these valves from their seats, admitting air and drawing gasoline through the aspirating tubes, B; a small



Stewart Duplex carbureter for eight- and twelve-cylinder motors

amount of air is drawn through the primary air passage and up around the flared top of the aspirating tube. The flare on the end of the tube is for the purpose of spreading the gasoline in a film. The more the throttle is opened the more the air valves will lift and the more gasoline will be allowed to pass by the tapered metering pins. The higher the valves are lifted the greater will be the opening around the metering pins, thus increasing the gasoline supply. The only adjustment possible in this carbureter is that of the relative position of the metering pin to the opening in the bottom of the aspirating tube.

MILBURN BATTERY CHARGER

Lincoln Electric Co., Cleveland. PRICE, 110 or 220 volts, 60 cycle, \$130; 25 cycle, \$140.

The Milburn light electric charger can be used by the private owner for charging the battery of an electric car. The operation has been reduced to the utmost simplicity, it being necessary only to turn the main switch in the car to charge position, insert the charging plug in its receptacle and close the switch.

The machine consists of a compound-wound direct-current generator direct connected to a standard single-phase squirrel cage induction motor. The motor is not self-starting and the outfit depends upon starting from the direct-current end. This is accomplished by a four-pole switch, the two middle prongs of which are higher than the others. After the switch is thrown in slowly, the shunt field is excited and then the armature of the generator is thrown directly across the battery circuit. The set then begins to revolve, the generator acting as a shunt motor, the series field being cut out by means of the clip. As the switch is thrown into the last step the alternating current is thrown onto the motor and the outfit starts to charge the battery. The charge starts at a high rate and tapers to a low finish.

Facts About Cars

Growth of Artificial Leather Production

When the production of artificial leather first became a noteworthy business the process consisted, in the main, of covering cloth with a flexible composition and then embossing the resultant product in imitation of leather.

The most essential feature, among many, of the artificial leather, is the coating, and for the splendid resources of this medium we have to thank the chemist. The requirements of the coating are manifold. In the first place it must retain its chemical composition without change throughout all its life. During the cold of winter and the heat of summer it must retain a uniform suppleness and flexibility. It must have toughness of texture to allow for the mechanical manipulation and stretching necessary to shape it into the fashions designed by the trimmer. This coating composition must have adhesive properties of such power that, regardless of time or nature of service, it will not peel. Originally it was applied to coarse-woven fabrics, but heavy sateen is at the present time chiefly, or at least very largely, used as the backing up cloth, although, of course, it can be, and, in fact, is applied to many fine cloths.

No great demand for the embossing of this artificial leather for top and curtain uses exists. However, for cushions and upholstery goods applied to the interior of the car there is a large market, and the call is for the closest possible imitation. That public requirements in this respect are being successfully met is attested by the fact that expert judges of leather sometimes mistake the artificial material for genuine leather. The remarkably real feel and appearance of the artificial leather is due in large part, it is said, to the exceedingly fine embossing plates produced through the medium of electrotyping processes from the genuine leather.

CHAIN ADJUSTMENT

There has been considerable argument among chain users as to whether a means of adjustment of the sprocket centers is advisable and the consensus of opinion of the makers of chains seems to be that wherever possible some means of taking up any play in the chains should be provided. Whipping, which is a natural consequence of looseness in a chain, is apt to break the chain in time.

Where the chain is used for ignition or camshaft drive, any slackness is apt

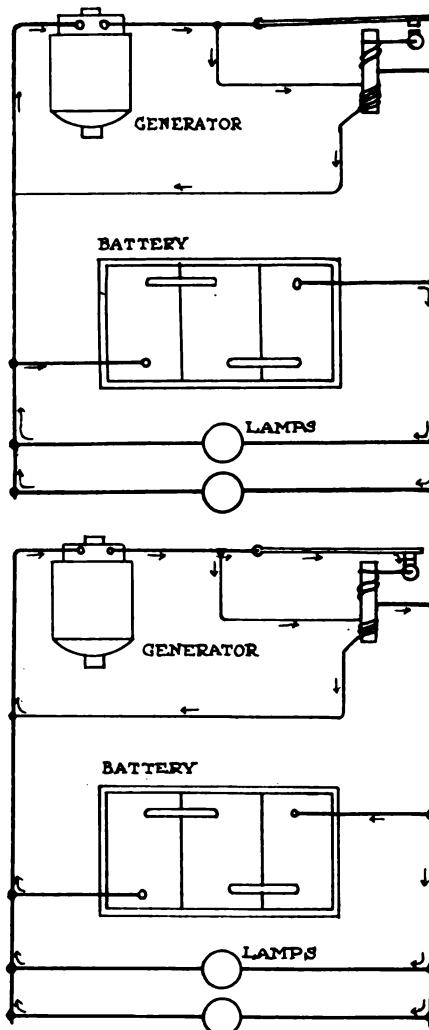


Fig. 1—Upper—Typical lighting system with lights on and cutout open. Lower—same circuit with cutout closed. The arrows show the current flow

to make inaccuracies in the valve timing and the ignition timing. Most designers have made it a comparatively simple matter to take up any looseness without removing the chain case cover. On drives where the sprockets are very close together, and there is very little of the chain free, whipping is obviously re-

duced, and the necessity of adjustment is less than where there is considerable free length. It is advisable, however, where adjustment is not feasible and desirable that the chain be made as wide as possible, thus bringing in as much inertia effect as is admissible to combat the tendency to whipping. Wear is also less with the greater contact width, which reduces the need for chain adjustment.

FUNCTION OF CUTOUT

The cutout is to prevent the storage battery discharging through the generator when the voltage of the latter is below that of the former, a condition which exists at low speeds. It is simply an automatic switch which breaks the circuit when the voltage of the generator falls below that of the battery. As shown herewith it consists of an iron core with two windings, one of many turns of fine wire P and the other a few turns of coarse wire S. Ordinarily the cutout switch is held closed by the magnetism generated by the current flowing through these windings, but when the current reverses, the magnetic field set up by the fine winding is opposed to that of the coarse winding and the net strength of the attraction of the magnet for the cutout switch member is the difference of the two. This pull is not sufficient to prevent the spring attached to the switch from pulling it out of contact and breaking the circuit.

FUEL ECONOMY VS. SPEED

The question, What is the most economical speed at which to operate an automobile? has been answered by the recent tests of two eight-cylinder Cadillacs by the A. C. A. At approximately 15 miles per hour the consumption was 1 gal. for every 20 miles, and at slightly over 62 miles per hour the consumption was 1 gal. for every 9 miles. The consumption between these two points varied directly as the speed. In other words, it takes more than twice as much fuel to drive the car at 60 miles per hour as it does at 15. A curve showing the results of the test is given in Fig. 2. This curve is a straight line, and minimum demand for fuel occurs at the lowest speed on high gear.

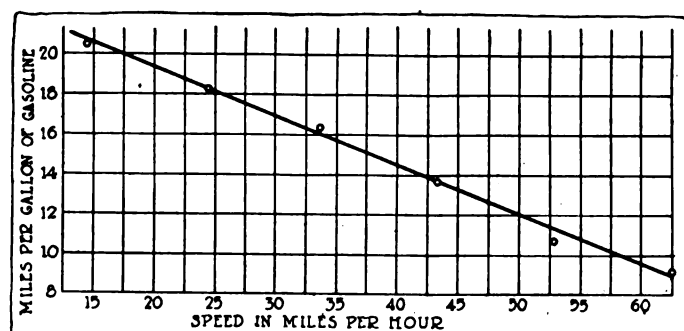


Fig. 2—Curve showing how fuel economy varies with speed

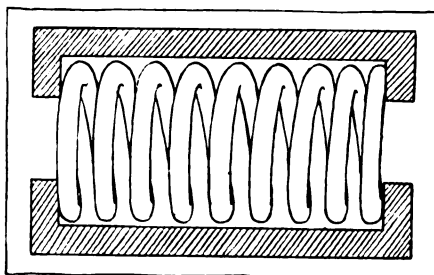
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Clutch Spring Clips

(No. 287)

To facilitate replacing clutch springs, two clips, as shown, are a valuable aid. The spring is compressed in a vise, the clips are placed at either side, and the spring is allowed to expand against the lugs on their ends. After the clutch spring is in place the clips are removed.—Chas. E. Reiss, New York City.



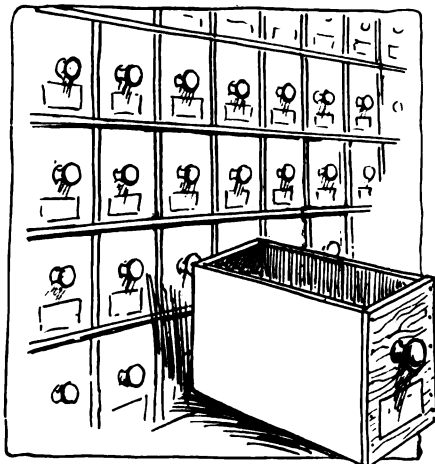
(No. 287)

Clips for replacing clutch springs

Small Part Case

(No. 286)

A complete stock of nuts and bolts is carried in a case like this. It includes machine screws in all sizes from 8-32 up; cap screws in all standard sizes from ¼ to 1 in. and in all lengths; all sizes of rivets, both steel and copper; cotter pins, lock washers and plain washers in all sizes; taper pins from No. 0 to No. 8 in all lengths; carriage bolts from ¼ to ½ in. in all lengths; all standard hexagonal nuts with both standard and



(No. 286)

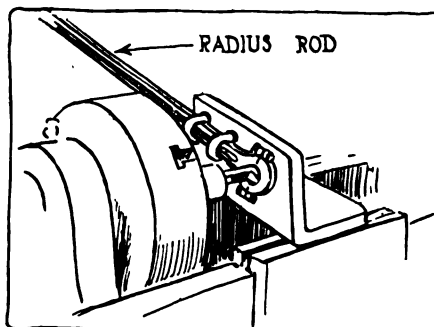
Stock case for small parts

S. A. E. threads; stove bolts 3/16 diameter and all lengths; sheet brass from .002 up to ¼ in.; tobin bronze round and hexagonal, and a large stock of iron and steel bar stock. Most of this material is housed in drawers and bins made from white pine boards ¾ in. thick, as shown. Each drawer or bin is tagged to show what is in it.—Wm. Youngs, Newburgh, N. Y.

Boring Radius Rods

(No. 290)

Boring out holes in radius rods or other work too large to swing in an ordinary garage lathe may be easily handled by clamping the work to an angle plate attached to the carriage of the lathe. Then a boring bar is placed in the chuck, exact adjustment of the tool



(No. 290)

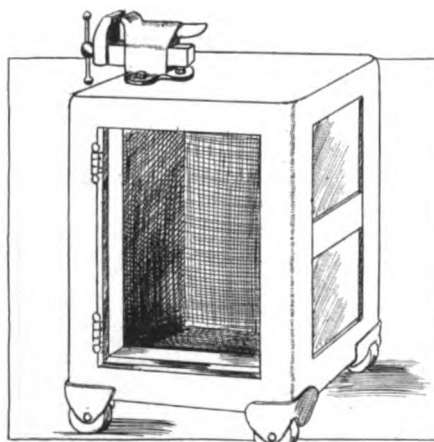
Boring radius rods in lathe

being obtained by screwing opposite dogs of the chuck in or out.—D. & P. Auto Repair Co., New York.

Use for Old Safes

(No. 288)

An old safe makes an excellent portable work bench. A vise is bolted to its top and since it is provided with rollers it is very easy to roll it around if the floor is reasonably smooth. The safe is heavy enough to make a firm support for the vise, yet it is not hard to roll.



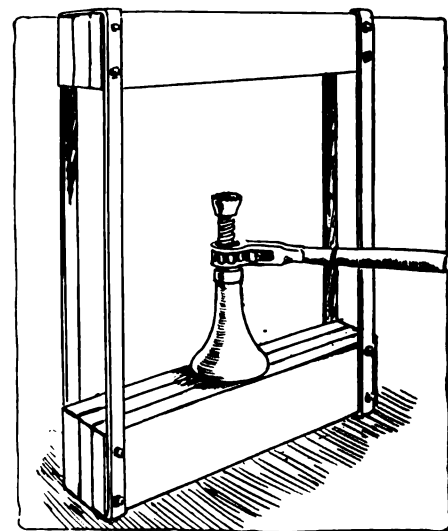
(No. 288)

Old safe used as portable workbench

Home-made Press

(No. 291)

A cheap arbor press can be constructed out of an old screw jack and any heavy



(No. 291)

Arbor press that is easily made

wooden or iron beams that are available. For example, the top and bottom members of the press may be made of three 2 x 10 pine planks bolted together. The construction of the press is clearly shown.

Piston Ring Clamp

(No. 289)

A clamp for holding piston rings tight while the cylinders are slipped over them can be made from a couple of strips of galvanized iron bent as shown. Thumb screws at each side are used to hold them in place.—J. E. Mayer, Diamond Motor Co., New Rochelle, N. Y.

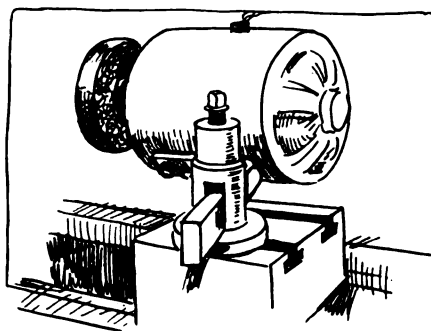
Scientific Selling

Page 11

Grinding Attachment

(No. 293)

A very simple grinding attachment for use on a lathe is shown herewith. It consists of a small electric motor which has a bar of iron fastened to it so that it may be placed in the tool post of the lathe. To the armature shaft is attached a grinding wheel of the type and size required. An extension to the armature shaft may also be used to advantage in certain kinds of work.—J. E. Mayer, Diamond Motor Car Co., New Rochelle, N. Y.



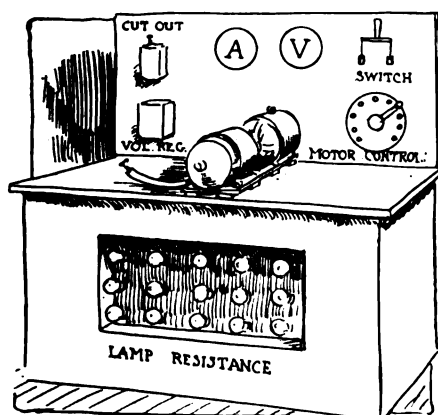
(No. 293)

Lathe grinding attachment

Electrical Testing

(No. 292)

When a large amount of electrical work is done it is well to make a testing apparatus where the generators may be examined outside of the car. An ammeter, voltmeter and cutout are the essential parts of the apparatus outside of a small variable speed motor for driv-



(No. 292)

Shop outfit for electrical testing

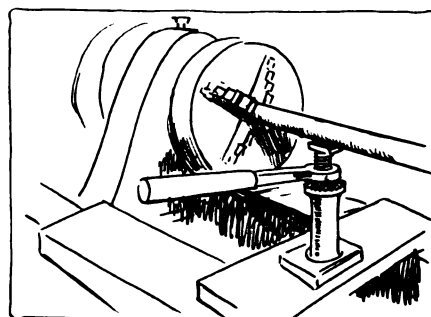
ing the generator. The motor should be equipped with some sort of universal coupling so that any generator may be quickly attached, then the voltage and amperage at various speeds and when the cutout operates can be readily determined.

Either a lamp or water rheostat should be connected to the generator to absorb the power generated. A speed counter, such as the one illustrated, is a good thing to have to determine the speed at which the generator is running; its cost is small and it is well worth the money.—R. H. Woodhull, service manager, Studebaker Corp., New York branch.

Running In Motors

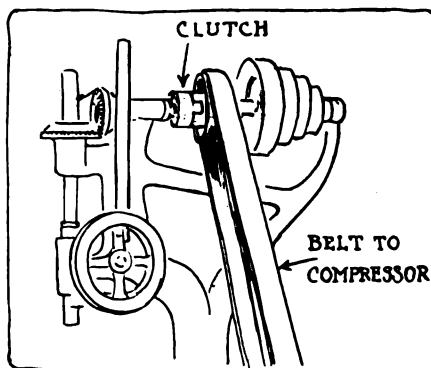
(No. 296)

For running motors in after they are overhauled the simplest arrangement is probably to connect the front end of the crankshaft to a shaft driven by belt from the line shafting. The coupling may be of the starter crank type. The motor should be supported on a low stand and the driving shaft should be provided with a universal. The shaft is most simply mounted by bolting it to the legs of a lathe or planer, as illustrated, and the shaft is driven directly from a pulley on the line shafting.—R. Vogel, New Rochelle, N. Y.



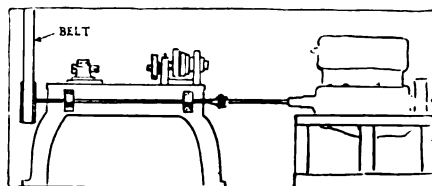
(No. 294)

Shaft straightening in the lathe



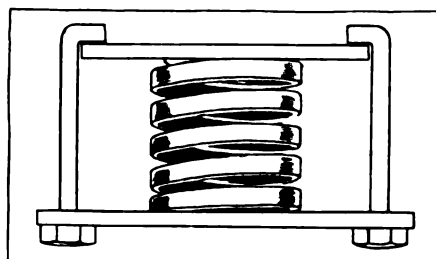
(No. 295)

Compressor drive from drill press



(No. 296)

Drive for running in motors



(No. 297)

Effective clutch spring compressor

Straightening Shafts

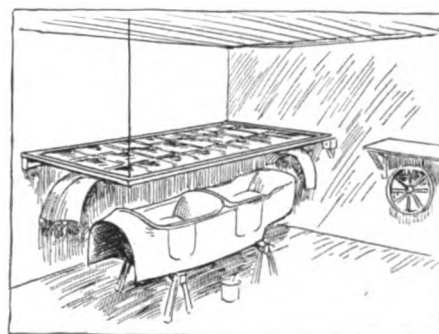
(No. 294)

One of the best methods of straightening a shaft when it is between the lathe centers is to use a small screw jack; an ordinary car jack sawed off to fit will do. The jack is placed on one of the cross-members of the lathe bed or rested on the end of a board made for the purpose.—J. E. Mayer, Diamond Motor Co., New Rochelle, N. Y.

Paint Drying Wrinkle

(No. 298)

The drying room of the paint shop should have low glass roofs over the cars, and the fenders and other parts finished separately should be hung on the wall directly under an overhanging shelf. These precautions will prevent most of the dust circulating in the room from settling on the highly finished surfaces. Especially is this true in winter,



(No. 298)

Protecting bodies when painting

when there is a considerable circulation of air in the room due to the disturbance caused by the heating system and dust is flying.—G. O. Reynolds, New Rochelle, N. Y.

Air Pump Drive

(No. 295)

Driving the air compressor from the cone pulley shaft of the drill press offers the advantage that a dog clutch may be used for making the connection, since the friction clutch of the drill press may be used for starting. The compressor may be driven either by gear or belt and the dog clutch may be placed directly on the cone pulley shaft, as shown.—R. Vogel, New Rochelle, N. Y.

Spring Compressor

(No. 297)

A device for compressing clutch springs is illustrated herewith. It consists of a circular iron plate which has two bolts running through it which hook onto another plate. The clutch spring to be compressed is placed between these two plates and pressure applied by means of the two nuts.—Wm. McIlvrid, Colt-Stratton Co., New York.

Scientific Selling

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MOTOR WORLD

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New Idea Salesmen

THERE is a big field for the jobber's salesman along lines suggested in the meetings of the National Association of Automobile Accessory Jobbers at Kansas City. He must in the future be both a missionary of good business and a salesman; he must have more in view than the mere turning in of large orders.

This thought came up many times during the discussions at this four-day meeting. When it was proposed to straighten the curve of jobbers' sales by inducing winter business the man upon whom the burden finally dropped was the salesman. When it was asserted that the dealer and garageman should not be over-sold the man to whom the buck was passed was the salesman.

Salesman Should Be Educator

When it was suggested that there is much in the line of business education that can be done for the garageman and dealer the man who was appointed a missionary *nolens volens* was the salesman. Whatever the jobber or manufacturer is to do in his relations with the retail tradesman the salesman is elected because he is the point of personal contact.

This indicates that there is a demand. A demand for what? For salesmen of a new type, to work in a new field. In this era of new conditions in the accessory trade these men are going to be valued assets. It is an opportunity for them.

The jobber can do much to help any salesman get into this work. The salesman can do infinitely more

through his own initiative. It is up to him. His future is in his own hands. As he has worked in the past he may work in the future and get away with it. But the new business demands men in sales managers' chairs who can put the new thought into action.

There are a lot of such chairs. And the chairs are seeking the men.

A New Field

THE need that existed for the National Association of Automobile Accessory Jobbers is emphasized by the success that has followed the formation of the organization. It has grown from 14 to 100 in six months.

It entered into that middle ground of the accessory trade—the jobbing field—which had received little attention. Manufacturers and dealers had organizations, but the jobbers had not. There were many evils in need of correction and many situations in need of clarifying. This the association is accomplishing.

Now that it has a good start it is expanding further. There are many who should ally with it. The manufacturers who have allied with it as associate members feel repaid for the alliance.

At its meeting last week in Kansas City many things were accomplished. They are told on the first pages of Motor World this week. It was the association's most successful meeting—which, it is anticipated, will be surpassed by the meeting in New York in January.

Know Your Goods—And Others

THE need for the salesman to know, and to know well, the goods of his competitor was never greater. Today there are more different kinds of cars on the market than ever before. Today there is a greater variety in different makes of cars selling for about the same price than ever before.

What does this mean? It means that the salesman has that many more questions to answer, that many more sales arguments to make. He must know the motor sizes of his competitors' cars, the wheelbase the seating capacity—the price. These things he must know if he is to talk intelligently.

The first requisite of a good car salesman is that he must know his own line. The second requisite is that he must know the line of his competitor. The knowledge will bring him a surer ground on which to work. He will know exactly wherein the goods he is offering is of greater value to the purchaser. Insofar as mechanical construction is concerned, the car he is selling may not be any better than that of his nearest competitor. But it surely has some features that are of greater value to the prospect. He cannot know what these features are unless he is thoroughly familiar with his competitor's car.

Dealers' Opinions.

Would Sell Cars Only To Legitimate Dealers

Editor Motor World:

We note with pleasure that our letter of August 7 to you concerning the need of better cooperation from the manufacturers of automobiles with legitimate dealers was reproduced in the September 8 issue of Motor World, and we greatly appreciate your interest in this matter and the steps that you seem to have taken to remedy conditions.

In discussing the subject of getting the manufacturers of automobiles to eliminate the curbstome brokers, we wish to state that we are not doing this with any selfish motive in view at all, but our only reason for making a plea in behalf of the legitimate dealers in the small towns all over the south is that we really feel that they are entitled to more consideration from the manufacturers than is being given them at the present time.

Some years ago, when automobiles were first being sold in this country, it was customary for a dealer, in order to get the agency for a certain make of car, to invest at least enough money for the purpose of building or renting storage rooms to be used for displaying the cars and for carrying on the business otherwise. And as the legitimate dealers in the smaller towns, as well as those in the larger cities, are expending quite a lot of money in equipping garages with the necessary machinery for repairs and building up enterprises of this kind, they are not only benefitting themselves but also the manufacturers and users of cars as well. For by investing money in an enterprise of this kind they are in a position to give service to the users of cars in their territory, and by being able to serve the public in this way they naturally work for the development of better roads for traveling over in automobiles, and as good roads always mean prosperity to any community, this, of course, brings about an increase in the sales of cars.

We also wish to state that the majority of dealers in the smaller towns do not find the ready sale for automobiles as do the dealers in the larger cities, and where they are just developing a new territory, under the existing circumstances they are often compelled to have to take trade, such as a horse or a cow, or possibly real estate, in order to make a sale of a car.

So it seems to us that after the dealers in the smaller towns invest their time

and money in building up a legitimate enterprise that paves the way in bringing about a movement that helps increase the sales of automobiles, that the manufacturers should realize that it is to their interest to protect them by not selling to the curbstome broker, who possibly never invests a penny for the cause that advances the sale of automobiles, but who, as stated before, often gets the agency for some make of car just in order to get advantage of the dealers' discount on a car for himself or some friends.

We are glad to know that the standard makers of automobile tires of today are seeking only dealers who can carry stock, and they are very particular to see that their goods are not sold direct from the factory to the users or some party who tries to get the agency without carrying stock.

To sell direct from the manufacturers to the consumer is contrary to the handling of most all other lines of machinery, vehicles or implements, and in justice to the legitimate dealers this should be so with the automobile manufacturer.

We trust that these conditions may be remedied and that the dealers may have a square deal in the future.

Johnson, Berger & Co.,
Morris Berger, Jr., Pres.
Jonesboro, Ark., Oct. 10.

Sliding Price Scale Is Great Trade Evil

Editor Motor World:

Naturally, as jobbers, we object to mail-order and cut-price house competition, but believe the remedy is in other methods than generally recommended. In our opinion the biggest source of cut prices in the automobile field is the sliding scale of prices. The small jobber is asked to buy an excessive quantity in order to obtain prices to allow him to compete with the large centers; then, when his stock does not move he cuts the price.

When the manufacturers, as a class, decide on a definite jobbing price, regardless of quantity, except as same may apply to packing, they will eliminate most of the present disturbance. The initial move in such a policy would be to select jobbers with the greatest care, naming only such concerns as were of recognized financial standing and doing a legitimate jobbing business, and make the line tight enough to keep out the concerns who put a man or two on the road and buy a syndicate catalog so that

they may truthfully say they are doing a jobbing business.

Too many manufacturers fall for the quantity proposition offered by the large jobber, making them special concessions and thus putting them in a position to travel men an unnaturally long distance from home. These men use the lower purchase price as a means of cutting prices enough to influence business not logically theirs.

Put them all on an even basis, discourage the naming of jobbing prices to catalog houses and department stores, also cut-rate houses, and you will have overcome most of this trouble.

We would like very much to have our views presented to the manufacturers as a whole in your periodical.

Morley-Murphy Hdw. Co.,
R. E. St. John.
Green Bay, Wis., Oct. 5.

Ford Tractor Should Plow at \$1.25 an Acre

Editor Motor World:

Your article in Motor World for September 29 on the Ford tractor seems to me somewhat erroneous in its premises. Having a very practical knowledge of both farms and farm power, I should like to state a few facts which my experience show to be different from the argument presented.

If the tractor works 10 hours per day, pulling two 12-inch plows, and consumes 10 gallons of kerosene in that time, it would plow approximately 4½ or 5 acres rather than 10, as an average full day's work. We are considering stubble land, plowing 7 inches deep, more or less, and the soil to be of a normally loose texture, such as most of the land of the middle west; and not stony.

Your expense estimate I consider quite reasonable; that is, \$3.10 per day, not including labor.

In regard to animal power, the two-horse method is all but obsolete in any place where the tractor would be useful. To be fair, the comparison should be made with a four-horse outfit, as this is an average size, some farmers driving as many as six or eight animals in one team.

Four horses will plow 4 or 4½ acres of stubble-land in a 9-hour day, at an average cost, according to the figures of many farmers and experiment stations, of \$1.75 to \$2 per acre, including labor, interest, depreciation, etc.

The tractor outfit would plow for \$1 to \$1.25 per acre, which leaves a satisfactory and more reasonable saving.

In conclusion I would like to state that while not connected with the automobile trade, I prize my weekly Motor World very highly, and would not be without it.

Merritt J. Culver.
Minnedosa, Man., Oct. 6, 1915.

Dealer's Legal Status

Under Lease Which Is Really Conditional Bill of Sale,
Garageman Can Hold Car for Money Due for
Storage But Not for Merchandise

By George F. Kaiser

Editor Motor World:

We are enclosing you copy of a lease. Please look this over carefully and inform us if a garage in our own city or nearby has the right to hold the car under this lease, for payment of a garage bill

Chapter 300 of the Acts of 1913 of Massachusetts, entitled "An Act Relative to Liens by Persons Maintaining Public Garages," provides:

"Persons maintaining public garages for the storage and care of automobiles and other motor vehicles which are brought to their premises or placed in their care by or with the consent of the owners thereof, shall have a lien upon such automobiles or motor vehicles for proper charges due them for the storage and care of the same."

Under this act garagemen have a lien for storage and care of motor cars and not for supplying gasoline, oil, tires, accessories, etc.

Wording of Instrument

I have had no better success in my attempts to find decisions on your question than you had. The instrument follows:

"This certifies that I, _____, now residing at _____, Haverhill, Mass., do hereby receive from the Ellison Motor Supply Co. the following described goods all in good condition:

1 Studebaker Truck M No. 46 44827
Serial No. 447398.

The balance of which is \$671.38. These I agree to use with care and keep in like good order, and for the use of which I agree to pay as follows: Fifty Dollars per month (\$50) upon the execution of this agreement, the receipt of which is hereby acknowledged, and to make further payments at the office of said Ellison Motor Supply Co., promptly without notice or demand; with interest on the unpaid amount, 6%. First monthly payment due 4th of next month (October).

But if default shall be made in any of said payments, or I shall sell or offer for sale, or cause to be sold, remove or attempt to remove, or cause to be removed, the articles of merchandise listed above from any aforesaid residence without the consent of said Ellison Motor Supply Co., then and in that case, or at the expiration of that time for which the articles of merchandise herein specified are rented, I will

for storage, gasoline, oil, washing, etc. Is he not liable for refusing to deliver the car in the event of the party not making the payments when due?

Ellison Motor Supply Co.,
Haverhill, Mass., Oct. 11.

voluntarily return and deliver the same to the said Ellison Motor Supply Co., in good condition save reasonable wear, and the said company or its agents may resume actual possession thereof, and I hereby authorize and empower the said Ellison Motor Supply Co. or its agents to enter any premises wherever said articles of merchandise herein specified may be, and take and carry the same away, hereby waiving any action of trespass or damage wherefor, and disclaim any right of homestead and other exemptions under the laws of said state as against this obligation. It is also further agreed that I may at any time wherein the said rental term, purchase the valuation therefor, and then and in that case only the rent therefor paid shall be deducted therefrom.

It is also further agreed that the above mentioned goods are to remain the property of the said Ellison Motor Supply Co. until the amount of \$671.38 is fully paid.

Dated, Sept. 18, 1915. _____

Witness:

ELLISON MOTOR SUPPLY CO.,
(Signed) J. O. Ellison, Treas."

Conditional Bill of Sale

Although in the form of a lease, undoubtedly this instrument is a conditional bill of sale. Although chattel mortgages must be recorded in Massachusetts, conditional bills of sale, according to Chapter 656 of the Acts of 1913, need not be so recorded. You were still the owner of the motor car then, and the only question is, Was the car brought to the premises or placed in the care of the garageman by or with your consent?

There is no doubt that you did not expressly consent to this, but did you not impliedly consent by putting the car in the custody of your conditional vendee? The garageman would contend that you did so in any event, as you knew the motor car must be stored and cared for some way.

As the garageman has possession of the car, I think the courts would be inclined to hold that he is justified in

holding it on the assumption that the conditional vendee acted as your agent in all matters which tended to preserve your property.

This stand would seem to be justified, as your agreement contains the clause that your customer agrees to use the property with care and keep it in good order.

Possibility of Holding Car in Pennsylvania

State Has No Lien Law Though Warehouseman's Measure Might

Be Cited

Editor Motor World:

As a subscriber to your journal I want to ask you if I have the right to hold a customer's car for a repair, supply and storage bill until he pays it? He has notified me that he will collect damages for every day I hold it. He owes me between \$40 or \$50, mostly for gas, oil, supplies and labor.

Lewiston, Pa., Oct. 13.

Roy Long.

As Pennsylvania has no garage lien law, you undoubtedly have no lien for the gas, oil and supplies furnished. With regard to the labor furnished, I am afraid you are in no better position. As the Pennsylvania law defines a "warehouseman" to be "a person lawfully engaged in the business of storing goods for profit," you may possibly be able to claim a lien for storage.

In the absence of a statute or cases on the point, it is difficult to advise you what to do. I think you had better see a Pennsylvania lawyer and put the responsibility up to him, as the customer's claim may amount to more than your bill if you have no right to hold the car.

I might add that No. 277 of the Laws of 1913 of Pennsylvania, entitled "For the protection of keepers of garages, or automobile shops; and providing a penalty for the removal of automobiles from the said garage or shop, with intent to defraud the keepers or owners," is as follows:

"Be it enacted, etc., that every person who shall place in any garage or automobile shop any automobile for storage, repairing, or garage service, and shall surreptitiously remove the automobile, or cause it to be removed by any false pretension or device with intent to defraud, shall be adjudged guilty of a misdemeanor and upon conviction shall be sentenced to a fine of not more than one hundred dollars, or imprisonment in the county jail for a term not exceeding three months, either or both, at the discretion of the court."

You might claim that this law impliedly recognizes a garage keeper's right to hold a car, etc.

Gas Stations Combine Beauty and Utility

Customers Quickly Served and Well in Minneapolis — 20 Stations in Chain

MINNEAPOLIS owners can have their gasoline served in de luxe time and manner. The Pure Oil Co. has just installed the seventeenth gasoline filling and oil station. It cost with the land something like \$15,000.

Beginning with a business-like establishment in the heart of the downtown district some time past, the company has gradually extended its system in the Twin Cities until it has nearly 20 stations, each a little better than the previous one.

Strategy has been utilized in the system of serving oil. The best traffic points incoming, and inversely outgoing, have been discovered and a station established. One cannot use a main traveled road in the city without passing a Pure Oil station. The points become fixed in mind and it grows to be second nature to stop at favorite stations.

Not content with just serving oil, the company has found service to be a thing of merit, and this service is based on a pleasing of the eye as well as on giving good oil in quick time. At each station are banks of grass in which are worked with white stones the words "Pure Oil Company."

Latest Station Pressed Brick

Stationed on the Mall, leading from the lakes parkway system of Minneapolis to a main highway to town, Hennepin avenue, the latest station is typical. It is grayish brown pressed brick. The eaves overhang the roadway to protect the cars that are filling, the architecture is excellent and is set off by a flower garden on the roof.

Four cars may fill at the same time. Gasoline is pumped from the large storage tanks underneath to 20-gallon gravity tanks, from which the cars are filled. This, the management believes, is the only proper way to serve customers. Gasoline of different grades may be obtained from the same part of the station.

Agility is one of the characteristics of the men in charge of the station. A car rolls in empty of gas and oil and air and water. The tank is filled quicker than a wink, water is put in the radiator, lubricant is forced into the gearcase and transmission with a grease gun, and air is being put into the tires at the same time. The car is run back of the station on to a turntable operated by electricity, is turned around, and rolls away down Hennepin avenue.

Electricity is utilized to pump the

The Pure Oil Co. spent about \$15,000 for this, the latest, of its Minneapolis filling stations. It is located on a street where the travel is greatest; it is a work of art, but best of all, customers are served quickly and with courtesy



Another of the stations which is not so beautiful but is just as utilitarian. It cost about \$7,500. Four cars can be filled at once, two on each side. This station, too, is on a main artery of travel.

Another view of the station, in the top view showing the picturesque little garden and the roof garden effect on the building. Cars are driven in at one end, filled, and driven out at the other



Electricity is used to do all the work, to pump gasoline and to operate the air compressor. It is also used to operate the turntable shown here, a great convenience where space is limited

gasoline into the holders, to furnish free compressed air, and to operate all machinery.

Ordinary accessories are sold in the station, such as plugs, dry cells and standard grades of oils.

Beside the "Free Air" sign and the signs indicating the nature of the company, others are displayed giving the current price of gasoline. To facilitate business customers are carried on monthly accounts. At the end of the month the duplicates of signed slips are mailed

as bills to the purchasers, representing the exact amount of account for the month.

That the purchaser may know just what he is getting in the way of gas, a measuring marking device, inspected and sealed by the state department of weights and measures, is in plain sight. The equipment is manufactured by the Pure Oil Co. Other independent oil companies are establishing stations at unoccupied points, but the Pure Oil has been the leader to date.

The RETAIL NEWS

EAST

Wm. Bowman, Orangeville, Pa., has opened the first garage in the town. He has a well-equipped repairshop.

The Franklin Motor Car Co., Pittsburgh, has been reorganized and is now the Franklin Pittsburgh Automobile Co. The president is W. Murray Carr; treasurer, R. S. Suydam, and secretary and assistant treasurer, R. Gribben.

Alfred H. Shaffer, Harrisburg, Pa., will build a garage, 109 x 148 ft., on South Cameron street. The cost will be about \$10,000.

H. W. Soper, Washington, D. C., will erect a three-story garage, 109 x 150 ft., at a cost of \$60,000.

The Allen Motor Car Co., Philadelphia, has moved into new quarters at 202-204 North Broad street, formerly the Paige salesroom.

Wm. Hall, Baltimore, will build a garage, 40 x 83.6 ft., in the rear of 307-317 East 31st street, at a cost of \$1,000.

W. C. DeForest and Son, Sharon, Pa., will build a one-story garage, 104 x 150 ft., at a cost of \$8,000.

Bitler & Yost, Allentown, Pa., will build a two-story garage, 80 x 105 ft., at an estimated cost of \$20,000.

John Isbiter, Boston Road, Larchmont, N. Y., is building a two-story garage at an estimated cost of \$8,000.

M. C. Barrett, Springfield, Mass., will build a garage 62 x 66 ft. at a cost of \$12,000.

Harold Brockway, Richfield Springs, N. Y., will build a garage, 40 x 160 ft., two stories high.

The Utica Motor Car Co., Utica, N. Y., has had plans prepared for a garage, 100 x 150 ft., on Kemp street.

G. G. Enerstein, Albany, N. Y., will build a garage at an estimated cost of \$2,000.

E. L. Day is building a garage, 30 x 50 ft., two stories high, at Westline, Pa.

Young & McCutcheon, Ford agents, Vandergrift, Pa., will occupy a new garage on Washington avenue.

J. H. Bayard, Greenville, Pa., has moved his vulcanizing and accessory shop from 604 South Broadway to larger quarters at 111 West Main street. Racine tires are handled.

W. J. Stuslick and E. L. Warner have formed the Winchester Motor Co., Springfield, Mass., and have taken the agencies for the Moline Knight and the Vixen, with salesrooms and service station at 776½ State street.

J. W. Mason, Vellie and Briscoe dealer in Newark, N. J., at present located at 350 Halsey street, will occupy a new building at 1005 Broad street. The new building will have a Broad street frontage of 33 ft. and a depth on Kinney street of 189 ft. The showroom, opening on Broad street, will be 55 x 33 ft., finished in white tile with a mezzanine balcony. The second floor will be devoted to service.

The Paddock-Zusi Motor Car Co., Newark, N. J., Chalmers dealer, has moved its service station and parts department to its new building at 894-896 Broad street.

The Reo Motor Car Co., the Hupmobile Co. of New England, and the Joseph S. Porter Co., agents for the Pathfinder and Regal, have all moved into the new building

near the junction of Commonwealth avenue and Beacon street, Boston. The structure is divided into three sections, the Reo on the east, Pathfinder and Regal in the center and Hupmobile on the west. Both the wholesale branch of the Hupmobile and the new retail agency will occupy the western section.

F. J. Hansen and B. O. Prentiss have opened a garage at 280 Main street, Hartford, Conn., and will do business as the Peerless Garage Co. The garage is new, two stories, brick. The repairshop will be on the second floor.

B. R. Leisure, who has been the manager of the Firestone branch at Salt Lake City, is in Baltimore and will have charge of the local branch. His territory will include all of Maryland and large parts of Virginia and North Carolina.

The American Oil Co., Baltimore, has established a branch at Cumberland, Md., and will establish a number of other branches in Maryland towns. The company refines Eze-Lube and is a large distributor of gasoline.

PACIFIC COAST

C. W. Shafer, Los Angeles, Cal., will build a garage at 1600 Temple street.

W. F. H. Walker will build a garage at main and Pico streets, Los Angeles, Cal.

C. W. Bowman, Huntington Park, Cal., has opened a gasoline and oil supply station on the Long Beach boulevard between the south city limits of Los Angeles and Huntington Park.

George Austin, Glendora, Cal., has leased the building and equipment of the Glendora Garage, A. O. Zawilna, former proprietor, having retired.

The Olympic Auto Repair Shop has been opened at 1531 Broadway, Seattle, Wash. W. J. Daoust and George J. Evans are the proprietors.

The Northwest Branch of the Metz Co. will build a three-story fireproof building on East Pike street, Seattle, to be completed by March 1, at an estimated cost of \$25,000.

B. F. Christman, Taft, Cal., has purchased the Bewley Garage and has made improvements and additions to the equipment.

Walsh & Bennett, Blythe, Cal., has sold the Blythe Garage to R. E. Hopkins. Hopkins intends to operate an auto stage line between Blythe and Santa Maria, the present terminal of the railroad being built into the Palo Verde valley.

T. Torgeson, Los Angeles, Cal., has opened a repairshop at 1227 South Figueroa street. He is making a specialty of radiator, fender and gas tank repairs.

SOUTHWEST

The Chevrolet Motor Co. of St. Louis has opened a city salesroom at the new Lindell Cut-Off with display windows on Olive and Locust streets and Lindell and Channing avenue. Russell E. Gardner is in charge.

Walter Stonum, who opened the Pacific Garage, Lamar, Mo., three years ago, has disposed of the garage to Ed Rathjee. He retains the Buick and Overland agencies.

John I. Cooper, Baxter Springs, Kan., is building a garage, 42 x 58, at South and Military streets.

The Hartford Suspension Co.'s district branch and service station has been moved

to 207 East 18th street, Kansas City, Mo. It formerly was at 1803 Grand avenue. Henry Roemer is manager.

The Sears-Cross Spedindicator Co. has opened a branch office and service station in Kansas City at 207-207 East 18th street under the management of Ed. S. Michelson.

MIDDLE WEST

Boyle Engineering Co., Cincinnati, has leased quarters at 224-229 East Seventh street and will conduct an accessory business.

Marietta Motor Car Co., Marietta, O., has moved into new quarters at 137-141 Front street. The building is 58½ x 188 ft., two stories in front and one in the rear. The Overland, Chalmers, Oakland and National are handled.

The Globe Motor Car Co., Canton, O., will build a four-story garage, 60 x 200 ft., at a cost of \$80,000.

J. W. Wiener, 216 East Market street, Akron, O., will build a garage 48 x 145 ft. at a cost of \$10,000.

E. H. Bush, Springfield, O., has opened a garage at 315 West Main street.

J. T. B. Varyan, Carthage, Mo., will build a garage at Fourth and Lyons streets.

Harry Deaner and Walter Oswalt have purchased the Midget Garage, Adams and Exchange streets, Freeport, Ill., and will continue the business.

The Props-Dunn Motor Co. is now the name of the former Props-Brooker Motor Co. The officers are: President, Oliver P. Dunn; treasurer, Otis Edgington, and secretary, J. Cooper Props.

Emil Estberg, Jackson and Huron streets, Milwaukee, is Oldsmobile, Maxwell and Wood electric dealer and does not handle the Chevrolet and Monroe, as was inadvertently stated in Motor World in the issue of October 6.

Robert D. Mitchell, Milwaukee, Wis., formerly selling representative for Gray & Davis products, has organized the Enger Motor Sales Co. of Wisconsin, to handle the state territory for the Enger Motor Car Co., Cincinnati, O. E. A. Glab, also well known in the motor car industry, is associated with Mitchell. Headquarters are being established in Milwaukee.

E. T. Krantz has leased the building recently erected in Wenona, Ill., by Peter Zimmerman and will operate it as a repairshop and salesroom, also handling the Maxwell. The building is located on First North street.

John Shannon has purchased the garage at Martinton, Ill., formerly in charge of J. R. Tourangeau and will operate the plant.

Andrew Sauers has sold the garage in Havana, Ill., to Edgar and Russell White, of Forest City, Ill.

Verkier & Curless, Peoria, Ill., has been dissolved by mutual consent, the former to continue in business in Peoria, while the latter will go to Havana, Ill., to handle the Reo.

The McKenney-Devlin Co., 698 Woodward avenue, Detroit, distributors for Grant and Haynes cars and Vim trucks, are adding 5,000 sq. ft. of floor space to their quarters.

A. Bellstrom & Son, Marquette, Mich., who heretofore did bicycle repairing only, are enlarging their shop and adding a motor car department.

The B. F. Falter Sales Co. has been formed in Detroit to handle the Argo. It is located at 762 Woodward avenue.

The Gonyer Garage, Middleville, Mich., is being enlarged by an addition which will give it twice as much floor space. It will be a two-story structure when completed, 120 x

30 ft. An automobile accessory department will be installed.

Oscar Lear, Columbus, O., central Ohio Buick dealer, is making a number of changes at his salesrooms and garage at 286 East Long street. A service station with 4,800 sq. ft. of floor space has been built in the rear and a showroom added to the front.

John McIntyre and Homer Marsh, Tecumseh, Mich., have severed their connection with the Garlinghouse Garage and will open a garage on Pearl street, where they will handle the Dodge.

D. C. Stuart, Grand Ledge, Mich., is building a new garage on South Bridge street.

L. H. McFarland, of Pekin, has opened a garage on East Chestnut street, Mason City, Ill. He will conduct a repairshop.

The Ryall Garage Co., Ladysmith, Wis., is making a second story addition and will use most of the space thus gained for a repairshop.

W. A. Hagen & Son, operating a garage in the Staudt Hotel annex, Manitowoc, Wis., are preparing to build a modern fireproof garage and repairshop, 50 x 115.

John Nummerdoer and Herman Robholtz, Fox Lake, Wis., have purchased a site at Friesland, near Fox Lake, and will erect a garage and repairshop, to be ready by December 1.

Richard Cotter, Merrill, Wis., has leased the Littlejohn building and is remodeling it into a garage and repairshop.

The Rhinelander Motor Co. has been organized at Rhinelander, Wis., to handle the King and Allen lines in Oneida, Vilas and Forest counties, Wis. Bud Lewis is manager. Offices and warerooms are now being arranged for.

The Wetmore-Quinn Co., distributor for the Paige and Saxon for Detroit and vicinity, will have a salesroom on Woodward avenue, near Willis avenue, in addition to the headquarters on Jefferson avenue. The latter will continue to be operated as both salesrooms and service station, while the new quarters will have salesrooms only.

The Stutz-Detroit Co. has been formed in Detroit by W. G. Smith and R. S. Marriam, with headquarters at 1225 Woodward avenue, to sell Stutz cars in this territory.

George F. and Clarence F. Williams will build a garage on North Mitchell street, Cadillac, Mich.

The Frank Perrin & Sons Co. is remodeling a building in Northville, Mich., and will open it as a salesroom for Fords.

Cecil R. Dennis, Marlette, Mich., has been appointed agent for the Maxwell in the townships of Marlette and Lamotte and will open a salesroom.

Howard S. Thompson and Burt B. Simons, Grand Ledge, Mich., have purchased a livery barn and will have a modern garage erected on the site.

W. E. Teeter, Hupmobile dealer at Battle Creek, Mich., has removed his garage from 27½ West Jackson street to 14 West Jackson street.

W. C. Craig and F. L. Wilson, of Tulsa, Okla., have opened the Radiator Hospital and Factory at 422 Bond avenue, N. W., Grand Rapids, Mich. They make a specialty of radiator repairs and maintain a similar shop in Tulsa.

The City Garage will be opened in the Smith building, Charlotte, Mich., by Caspar Frace and LaVerne Goldsmith. The front will be a salesroom and will be occupied by Lawrence Robinson's Overland sales agency.

The Akron Motor Mart Co. has been incorporated in Akron by W. J. Boardman, W. H. Boardman and W. P. O'Neill. The company will operate a garage, distribute the

Sun and handle the Baker R-L electric. The garage is at 70 Cherry street.

The Hills Motor Car Co. has opened salesrooms and service station at 6016 Euclid avenue, Cleveland. Lozier and Briscoe cars are handled.

The Park Auto Sales Co., Boardman street, has been organized in Jamestown, O., by George Huffines, J. D. Parrock and Wm. Saxton. The concern will do a general garage business and operate a repairshop.

The Garford Motor Truck Co., Inc., which is a branch of the Garford Motor Truck Co., Lima, O., has opened a sales and service station in Toledo, O., at the former Jeffery headquarters, 23rd street and Indiana avenue. The new company is headed by G. A. Crane, formerly with the truck division of the Overland Motor Co. C. E. Golder is assistant manager, J. C. Philpott is superintendent, and Fred Liser will assist Crane in special sales work.

George D. Mason, Detroit, will build a garage and repairshop at a cost of \$4,000.

The Speedometer Service & Supply Co., 182 Fifth avenue, Milwaukee, recently opened a service and supply station of the Stewart-Warner Speedometer Corp.

The Storage Battery Service Co., organized recently in Milwaukee by C. F. Seifert and W. W. Zeige, has been appointed distributor of Exide batteries. Headquarters are at 137 Oneida street.

Lando L. Albert has established a Ford repairshop at 187 Oneida street, Milwaukee.

The Dayton Rubber Sales Co., 415 Cedar street, Milwaukee, has taken the agency for the W. & C. shock absorber for Ford cars, manufactured by Phil. H. Webber & Co., Hoopestown, Ill.

The E. E. Fuller Sales Co. has been organized at Madison, Wis., by E. E. Fuller, to handle the Cadillac in Madison and surrounding territory and has established headquarters and service station at 325-327 West Johnson street.

Theodore Tollack has sold his garage business at Black River Falls, Wis., to John Bock. Tollack retains the Overland agency. Hogg & McManners, Ford dealers, have arranged with the Bock garage for service station and repairs and will abandon their garage on Taylor street.

J. L. Ryall, proprietor of Ryall's Garage at Ladysmith, Wis., is adding a second story and a 4-ton electric elevator and considerable new machinery will be installed.

The Grand Avenue Garage, 2713-2715 Grand avenue, Milwaukee, has been purchased by Paul Koch, who will have active charge as manager.

A. H. Shugrue has let the contract for a new garage at the corner of First and Belsley streets, Pekin, Ill., and will operate a repairshop and handle accessories.

R. J. Marquard has purchased the garage operated at Stonington, Ill., for the past year by W. R. Allen and takes possession November 1.

The Illinois Automobile Sales Co. has been organized at Freeport, Ill., by George Tinsley, W. C. Stewart and E. R. Scott. They will handle the Empire, Auburn and Paterson, the Waverly electric and the Selden truck, and will be sole distributors for the northern Illinois tier of counties outside of Cook.

Hyatt, Schell & Jones, of Farmer City, Ill., has let the contract for a new garage to be 50 x 115 ft. The Overland is handled and accessories are stocked.

Frank Fox, Cincinnati, will build a two-story garage, 68 x 150 ft., on Fifth street. The cost will be about \$40,000.

The Curtin-Williams Automobile Co., formerly Columbus agents for the Cadillac, will

distribute the King, Cole and Dort in central Ohio. The territory covered for the King and Cole comprises 15 counties and for the Dort 10 counties. The concern has occupied new quarters at 187 North Fourth street.

The Tuscola-Newman Motor Co., of Tuscola, Ill., was organized recently and will handle the Ford in the Douglas county territory. A garage and salesroom has been secured on North Central avenue. The firm will conduct a branch at Newman, Ill. James Melody, of Tuscola, and Grant Childers, of Charleston, are the principal stockholders.

The Motomart Co. has been incorporated in Youngstown, O., with a capital of \$10,000 to buy and sell automobiles, supplies and carry on a general garage business. The incorporators are Donald Parson, Mark Perkins, R. W. Sterling, H. H. Hill and J. P. Huxley.

SOUTH

C. C. Shaw and Fred J. Cox, Lexington, N. C., will build a garage.

The Gooch Hunt Auto & Machine Co. will move into a new garage at Market street and Central avenue, Somerset, Ky.

Robert H. Martin, manager of the Buick branch, Washington, D. C., for three years, has resigned. With A. G. Southworth, Brooklyn, and A. H. Salver, Buick manager in Pittsburgh, he has formed the Southern Oakland Co., and will be wholesale distributor of Oakland cars in Georgia, Alabama, Florida, Mississippi, Tennessee, South Carolina and western North Carolina. The officers of the company are: President, A. G. Southworth; vice-president, A. H. Salver, and secretary-treasurer and general manager, R. H. Martin. Headquarters will be in Atlanta.

The Dixie Auto Co., Russellville, Ky., will open a garage and repairshop.

The Florence Motor Co. is located in Florence, S. C., and not in Charleston, as was recently stated in Motor World.

NORTHWEST

Frank A. Wickham, formerly manager of the parts and claims department of the Minneapolis Studebaker branch, and Roy W. Knights, who was with the Gray Motor Co., St. Paul, have formed a partnership as Knights & Wickham and are handling motor car specialties. The main office is at 3125 Fremont avenue, S., Minneapolis.

J. C. Barth has opened a garage in Havlock, Ia.

J. H. Grill, Sherburn, Minn., will build a garage, 60 x 130 ft.

The Clemens Auto Co., Des Moines, Ia., will erect a building at 921 Mulberry street at a cost of \$40,000.

Stephen Tenvoorde, St. Cloud, Minn., is erecting a 50 x 66-ft. addition at the rear of his garage. The completed structure will be 126 x 66 and the addition will include 9,000 ft.; the whole will include 14,000 ft. The addition will have a basement and two floors and a 3-ton elevator, 8 x 22. The improvement will cost \$15,000.

The Sims Automobile Co., Grand Forks, N. D., will erect a three-story building, 140 x 50, in the spring on the site of the building now occupied by the Springen Auto Co., Dodge Bros. dealer.

The Todd-Emerson Auto Co., Minot, N. D., has been formed by G. H. Todd and L. A. Emerson. They are handling the Grant, Maxwell, Jackson and Hollier at 36 Central avenue.

The Moore Auto Co., Minot, N. D., has just taken possession of a new two-story brick and tile building, 50 x 100, with basement. It has a capacity of 100 cars. The Ford is handled. C. W. Moore is the proprietor.

Ideal Garage for Corner 96 x 100

Full Frontal Length Should Be Used for Car and Accessory Store Display — Ramp Preferred to Elevator — White Ideal for Interior

Editor Motor World:

We wish to build a two-story garage on property having 96 feet street frontage, 100 feet depth on a lane; ground floor to care for office, showroom, stockroom, wash rack and live storage; second floor, repairs, dead storage, etc., with an electric elevator connecting floors.

We would like your opinion of the best arrangement of the ground floor. We wish the stockroom, office and showroom as convenient to one another as possible. We want our premises to be up-to-date. It is necessary that the accessory and parts stock be handled in the same room and therefore on the ground floor. We are enclosing a rough sketch, Fig. 1, of one arrangement we had in mind and we freely admit it very bad, but it will probably give you an idea of the sizes of the various rooms we believe capable of handling the business we expect to transact.

Diehl Motor Car Co.,
Per M. A. Cory.

Medicine Hat, Alta, Can.

Street Front Is Valuable

The objection to your plan, Fig. 1, is that very little use is made of the valuable street front; all this space should be used for displaying cars and accessories. In your plan the showroom is narrow and deep, and the window on the lane is longer than the one on the street; and only one car can be placed in the street window. The accessory store front is too narrow for the adequate exhibition of goods and the stockroom is too far away from the accessory store; the two should be together. You have only one garage entrance, and since your building is on a corner there is no reason why you should not have two or three, the advantages being that it is easier to arrange the cars compactly on the garage floor when there are several entrances, and entrance and exit of cars can be made in a minimum time. This is of importance in case of fire and also is a convenience to the owner.

In our plan (Fig. 4) the street frontage is used to the limit and there are three car entrances. About 85 of the 96 feet are utilized for showroom and accessory store fronts, instead of 40 feet, as in the other arrangement. The area taken up is very little more; about 2,200 square feet instead of 1,800.

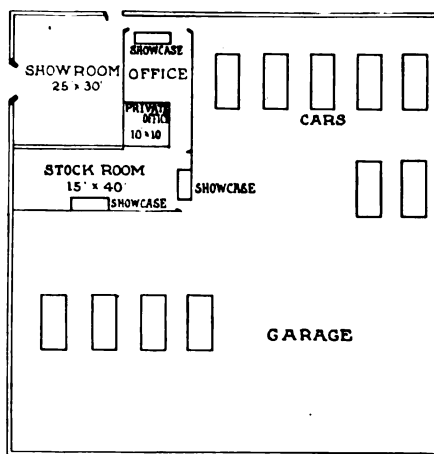


Fig. 1

The objection, to this plan suggested by the Diehl company, is that not enough of the frontage is utilized. The position of the showroom is all right but the accessory store should be spread out more to give room for display of goods in the show windows. Both showroom and accessory store are crowded

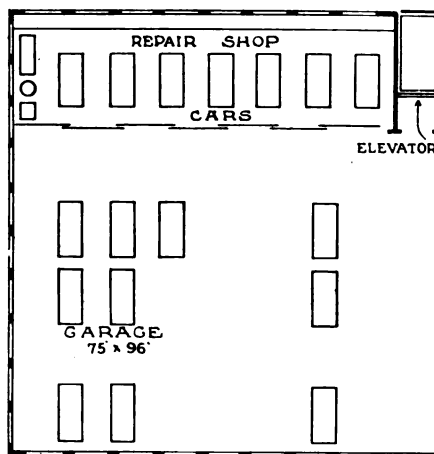


Fig. 2

Second floor layout with elevator. The repair-shop occupies a 25-foot strip at the front enclosed by sliding doors

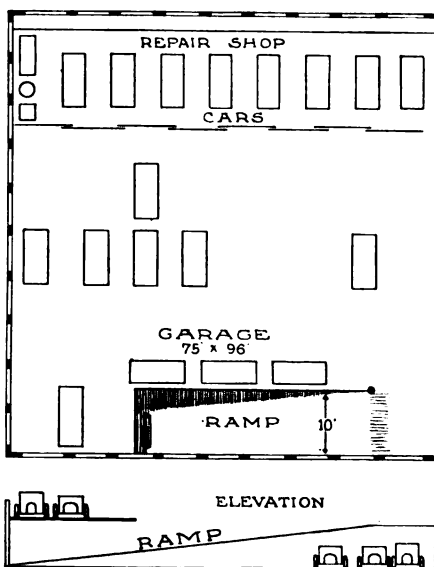


Fig. 3

Second floor with ramp instead of elevator.

The car showroom measures approximately 25 x 40 and has space for three or four cars, two of which are placed in the front window and one at the side. The front window runs clear to the floor and allows an unobstructed view of both cars. For this reason, among others, the entrance is placed at one side.

Reasons for One Entrance

Another reason for placing the entrance at one side is that it also serves as an entrance to the accessory store and stockroom, which are combined in one. Obviously this is a space economy, but there is a more weighty reason for using one door; it makes passage into both stores as easy as possible; it allows the customer to follow the line of least resistance.

One window 40 feet long will be a very large piece of work, but instead of dividing this into two windows by a break in the center it will be better to divide the car showroom and the accessory store windows as follows: Put as large a glass as you can get in the center of the space and fill in the remaining spaces at the ends with smaller windows, making the dividing strip as small and inconspicuous as possible.

Eliminating the Divided Front

This, in the car salesroom, will eliminate the divided-front effect and in the accessory window the space back of each pane of glass can be built up as a display of separate products. Tires might occupy the center one week with horns at one end and tools at the other; the following week this could be changed to some other form. The cars are brought in through a door at the back of the room.

The furnishings of the showroom should consist of an oval table in the center and one or two desks for the salesmen at one side. A tiled floor graced with some rugs would add to the pleasing effect and photographs should be placed along the walls to remove the bare look so common. One or two palms would also help to make the place attractive.

The walls should be paneled and both walls and ceiling painted white. This color is attractive, matches all body colors, and is clean. Most important of all, it reflects all the light so that the cars can most easily be seen from the street, even on a sunny day. With dark woodwork this would be impossible.

The large show window allows an excellent display to be made. Shelves, drawers, cabinets and bins line three of the walls, and there is one long show case and counter. All of these are visible as the customer enters the door; he takes in the whole store at once and the effect this display produces is equal to that of the big window. The accessory store measures about 15

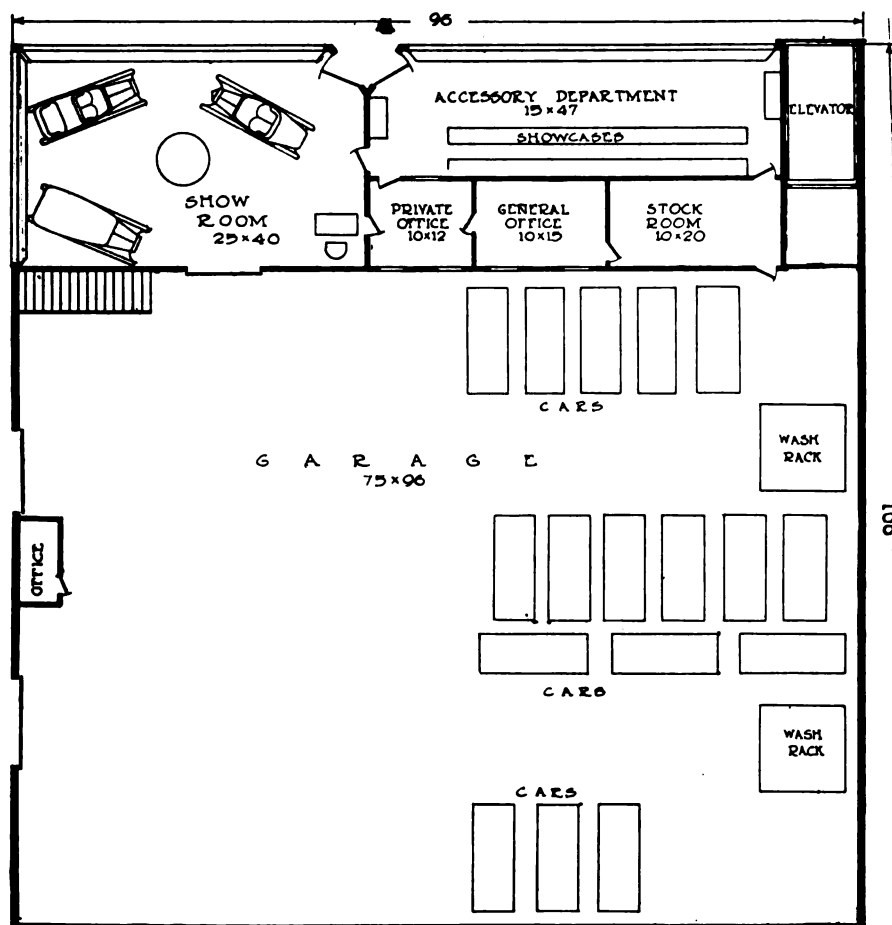


Fig. 4

First floor plan with showroom and accessory store occupying nearly the whole frontage space. Two sides of the showroom have full-length windows, which give a maximum view from outside. There is one large window in the accessory store for display purposes

x 45. Back of this room are the offices and the room for reserve stock and rough parts that would not look well in the store. Under no circumstances should accessory store and showroom be combined as the two do not look well together and supply customers interrupt work in the showroom.

The rest of the first floor layout is almost too simple to require any explanation. The staircase is in one corner and there is a small office between the two side entrances for the man who checks the cars in and out. One or two wash stands, as required, are placed at the ends of the aisles.

Repairshop at Front

Fig. 2 shows the second floor plan. The repairshop is at the front. There is a work bench along the front windows and the machine tools are grouped at one side.

How the second floor would look if a ramp or inclined driveway were used instead of an elevator is shown in Fig. 3. Under some conditions it would be better to use a ramp. If one elevator is sufficient for your needs probably a ramp would not be justified, but if more than one elevator is necessary it probably would pay. The elevator installa-

tion will cost about \$3,000; 5 per cent should be charged for interest on this amount and 5 per cent more for depreciation; this amounts to \$300 per year. In addition, there is a charge of \$200 per year for maintenance and repairs, bringing the total up to \$500 per year, exclusive of cost of current.

Will the Ramp Save?

The question for you to decide is whether you will save anything by using a ramp. The cost of the ramp is not much more than an equivalent amount of floor space, and the area it takes up is actually only about equal to the area of the ramp because one-third the space above the ramp can be utilized and about two-thirds the space under it; most of the latter for car storage and the remainder for storage of oil, waste and so forth. Equivalent of the ramp area would house about 12 cars, and assuming that the space taken by one elevator will take two cars, then the space saved by the elevator will hold ten cars. Therefore the question is whether your rental for this space will equal the \$500 or \$600 required for operating the elevator. It must be remembered that this is assuming that you will utilize every available inch of your garage space; probably you

never will, so that the space taken up by the ramp will never be missed. If this is so, the ramp should be adopted by all means, because under these circumstances its yearly cost is nothing as against several hundred dollars for the elevator.

MOTOR RATING IS NOT GUESS WORK

Horsepower Formula Represents Experience of Engineers and Is Standard

Editor, Motor World:

Please advise me how you find the actual rating, or is it guess work. Is this rating taken from measurement of cylinder or does the engine actually develop that under brake test?

T. T. S.

Purcellville, Va.

The actual rating of a motor is not guess work, as you have stated. It is obtained by considering the bore of the cylinders and the speed of the pistons. The formula which is now in general use throughout the United States assumes that the average speed is 1,000 feet per minute for all motors regardless of the length of stroke. This figure has been arrived at after careful consideration and experiment and has been adopted as a standard. The formula is as follows:

$$D^3 N$$

$$\frac{2.5}{\quad}$$

In this formula D represents the diameter of the piston or the cylinder and N is the number of cylinders. The figure 2.5 is a constant which is used for all four-cycle motors regardless of size or make. Using this formula the horsepower rating of a four-cylinder motor with a bore of $3\frac{1}{4}$ inches would be 19.61. This figure is an arbitrary one and is useful primarily for comparative purposes. It is not an indication of the maximum horsepower possible to obtain from a given size motor. The maximum horsepower possible can be ascertained only with the use of a prony brake or a dynamometer. Without exception the modern motor will develop considerably in excess of the horsepower indicated by this formula.

Extinguishers for Gasoline or Oil Fires

Gasoline or oil fires are best extinguished with flour, sand or earth in the order named. If the fire be confined in small space, ammonia will smother it. It is well to hang a gallon bottle of ammonia from the top of the tank or room containing the gasoline or oil, by a string or fusible link, so that if fire occurs the bottle will fall and be broken, releasing the ammonia and promptly putting out the burning gasoline or oil.

E. V. A. May Affiliate With the National Light Body

Electric Vehicle Interests Vote for Closer Cooperation Between Current and Car Producers

CLEVELAND, October 22 — New spirit and enthusiasm was engendered in the electric vehicle and allied interests by the sixth annual convention of the Electric Vehicle Association of America, which completed its two-day program with a lively banquet tonight at the Hotel Statler here.

The attendance ran close to 300, and a good proportion were central station men. There were 87 central station operators on hand, 52 battery men, 40 vehicle manufacturers or their representatives, 65 electric accessory men and 45 having miscellaneous connection with the industry. From this it will be seen that the current-supplying branch of the business is evidencing great interest in the development of the sale of electrics, while the makers and those supplying them with equipment were also out in fairly strong force.

Officers Elected

The convention elected as officers for the coming year four who are connected with current-producing companies, two who are members of electric car manufacturing businesses, and one identified with an electric engineering concern. W. H. Johnson, vice-president of the Philadelphia Electric Co., Philadelphia, was made president. The other officers are: Vice-president, E. S. Mansfield, superintendent operating bureau of accounts, Edison Electric Illuminating Co., Boston; treasurer, H. M. Edwards, auditor, New York Edison Co., New York. Directors: W. H. Blood, Jr., Stone & Webster Management Association; P. D. Wagoner, president, General Vehicle Co., Long Island City, N. Y.; G. H. Kelly, secretary-treasurer, Baker-R. & L. Co., Cleveland, and the retiring president of the association, J. F. Gilchrist, vice-president, Commonwealth Edison Co., Chicago.

Summing up the work of the convention, probably one of the most important steps was the voting for closer attention to the relations with the National Electric Light Association with the view of working hand in hand with that body, and possibly later affiliating with it. The N. E. L. A. is a strong association, whose influence can be of great assistance to the E. V. A. A.

The sentiment of the gathering was for closer cooperation between the central station interests on the one hand and the vehicle makers and sellers on

the other. It was felt that in the central station lies the power to materially boost the business, not only in a general way, but in municipal quarters where fire, police, ambulance and other forms of vehicles are needed.

It was apparent from the trend of the discussions that the electric men realize the lack of satisfactory electric garage service at present, and they see in this phase one of the reasons why electrics have not come into more extensive use. It was brought out that the properly equipped electric garage is necessary to the development of the industry.

Electric Has Distinct Field

Recognition was also made of the fact that it is a fallacy to sell electric trucks for classes of service to which they are not best adapted. It is believed that there is a distinct field for both the gasoline and the electric vehicle, and scientific analysis of the transportation problem in hand is desirable before selling vehicles for any service. This will lead to greater satisfaction in the end and will mean more sales to the same source instead of dissatisfaction where a truck has been improperly placed.

In spite of the general adverse business conditions of the past year, and especially the very great depression suffered by the electric vehicle industry, the membership in the association was reported to have grown some 24 per cent, the total registration at this time being 1,094. The membership committee's report also shows that there are 16 sections of the organization in all parts of the country.

Geo. H. Kelly had no written paper to present in attacking his subject on "The Problems We Are Facing and How They May Be Met," but he electrified the convention with some most appropriate and rapid-fire extemporaneous logic.

There are two questions before the industry, Kelly stated. One is the creation of a demand, and the other is how to care for the cars after they are sold. The electric car of today is a vehicle of utility and service, and not to do stunts with, he said. For city use, the electric answers the question of transportation and utility for 99 per cent of the users today. Its possible speed is in excess of the speed limits of any city in the country and its mileage is greater than any one requires. The people, according to Kelly, are beginning to realize more and more that the electric is a pre-eminent

town car. He says that the big problem is how to prove this to the great majority of the people, and he believes that educational publicity is best.

The other big problem is the care. Kelly says all must admit that the electric car is unable to get the expert care that the gasoline vehicle can get today. In order to be assured of proper electric care, one must go to an educated electric man. There are not over a dozen electric garages of merit in Cleveland, for instance, while there are over 150 gasoline garages, according to Kelly. It is easy enough to sell the cars, he says, but it is difficult to keep them sold and to get repeat orders under existing service conditions. He emphasized the point that all must make sure of the facilities for care of the cars, and that is where the central station people can be of greatest assistance—in cooperating with the manufacturer. He thinks the new battery service schemes are going to have a tremendous helpful influence.

The bugaboo of the business, said one man in discussing Kelly's remarks, is the lack of proper charging stations, where batteries can be correctly taken care of.

W. C. Johnson stated that probably there are 3,400 passenger electrics sold last year, while gasoline machines were sold by the hundreds of thousands. He is at a loss to see how the business can be brought to where it should be unless the various factions cooperate earnestly. This cooperation might lead to the forming of a joint committee of central station men and manufacturers to decide among themselves what is best to do. The only limit to the action of the electric is its mileage, but when it is possible to take on energy at any time at the curb, as the Detroit Taxicab and Transfer Co. is doing, the problem seems nearer of solution.

New Conditions After War

E. E. Chalfant stated that the future of the business depends upon constructive and intelligent cooperation. One of the greatest local problems is that the electric dealer cannot properly conduct charging stations and attend to selling too. The central stations, however, have cooperated during the past year with the dealers more than ever before. He sees the need of a paid man to send to the indifferent central stations and convince them of the advantages of pulling together.

P. D. Wagoner thinks no greater mistake can be made than to try to apply the electric truck to the field best filled by the gasoline vehicle. At the end of the war all will face new conditions. The gasoline truck makers by reason of the great demand have gotten in shape for large output, have tooled up for it, and therefore the electric makers must pay attention to business and not let the others get the lead when hostilities cease.

Association News

SUPPLY DEALERS ORGANIZE

CHATTANOOGA, TENN., October 25—For the purpose of mutual protection the Southern Automobile Supply Dealers Protective Association has been formed and the following officers elected: President, R. H. Hart, Hart's Garage, Briscoe and Federal truck dealer; secretary, C. A. Noone. Directors: W. W. Wallace, president, Wallace Buggy Co., Overland, Premier, King pleasure and Gramm and Chase truck dealer; F. G. Joyce, president, Chattanooga Buick Co., Buick dealer; G. M. Heggie, managing director, S. L. Mitchell Auto Co., Studebaker, Maxwell, White and National pleasure car and Republic truck dealer. As set forth in the by-laws of the organization, its purpose is "to promote the general welfare of dealers in automobile supplies in the southern section of the United States and to unite all worthy dealers in such supplies in one general association for the purpose of improving conditions in the supply trade, disseminating information and promoting the business efficiency and social enjoyment of the members." There are to be neither initiation fees nor dues, the expenses of the association being paid by voluntary contributions. Only retail supply dealers will be eligible for membership. Among other things it is proposed to retain an attorney whose duty it will be to investigate the claims of manufacturers who threaten patent suits for handling merchandise which is claimed to be under contract for exclusive distribution and to defend suits which may be brought under such conditions. The association proposes to wage war against the cut-price mail-order house. It is stated that a number of dealers in Chattanooga have taken upon themselves the initial expense of the organization.

TRI-CITY BROADENS SCOPE

DAVENPORT, IA., October 25—Although membership in the Tri-City Automobile Trade Association heretofore has been confined strictly to retail motor car dealers, who must have an established place of business, have been in business for at least one year preceding application for membership, and have sold not less than five cars during that period, there is now a movement on foot to broaden the membership requirement. It is proposed to take in accessory and tire dealers and independent garages without a car agency, but which are of good repute and have been long established. It is proposed also to take in many of the smaller dealers in the smaller towns surrounding Davenport, Rock Island and Moline. At the last regular

meeting of the association, resolutions deploring the present method of announcing cars all through the summer

With automobile dealers' Organizations throughout the east there should be an exchange of experiences and ideas, and I would suggest that we all communicate through the columns of *Motor World*. I am interested in this magazine because it is the best on the market and it is necessary to have such a medium in promoting the interests of all dealers.

Geo. C. Donahue,
Secretary Utica Automobile Trade Association.

were passed and forwarded to the National Automobile Chamber of Commerce.

KANSAS TOUR ENDED

KANSAS CITY, MO., October 22—The annual six-day tour of the Kansas City Motor Dealers Association through western Missouri and eastern Kansas was concluded with the arrival of the twenty 1916 model participating motor cars in this city on the evening of the 16th. There were nearly a hundred dealers and road boosters with the cavalcade and the Third Regiment Band, consisting of forty pieces, was included.

WASHINGTON TRADE BODY

SEATTLE, October 25—The Washington Motor Trades Association has been organized in Seattle and plans have been made for an aggressive membership campaign. It is composed of garage owners, machine shop operators, repairmen and accessory and supply dealers. It is the intention of the association to regulate prices for garage storage, accessories and repair work and to eliminate cut-throat competition.

SERVICE MANAGERS ORGANIZE

DETROIT, October 26—Service managers and other factory representatives from most of the automobile manufacturing concerns in Michigan and northern Ohio met in convention here today and formally organized the Automobile Service Managers Association of Michigan. Its principal object and purpose is to determine the best methods of conducting the work of the manufacturers' service and repair departments to furnish a maximum of service to the mutual advantage of all concerned, to improve

and facilitate cooperation among manufacturers, dealers and owners and to promote the more liberal policy of helpfulness to the purchasers of motor vehicles that is reasonable and equitable to all.

Among the cities in northern Ohio where automobile concerns are located and which are included in the new association, are Toledo, Bowling Green, Lima, Sibley, and Fremont.

Cleveland has not been included on the list of manufacturing centers to be looked after by the new organization because it is generally thought that before long a service managers' organization will be started there.

BROOKLYN DECIDES ON SHOW

BROOKLYN, N. Y., October 25—The Brooklyn Motor Vehicle Dealers Association met last week and it was unanimously decided to stage a show though neither the date nor the place were chosen. The following were appointed members of the show committee: C. J. Maxon, chairman; S. M. Miller, W. A. Sellon, C. F. Batt, A. D. Corwin. This committee will investigate several proposed show buildings. The annual meeting and election of the association will be held November 18.

To Pay or Not, Worries Denver

DENVER, October 25—To pay or not to pay—that's a question causing considerable excitement and anxiety among Denver motor car dealers and city officials in connection with the new ordinance requiring a \$25 license fee for garages. The law has just gone into effect and the city license inspectors have started to see that all garages pay. But neither the inspectors nor the higher officials at the city hall are absolutely sure as to just when a garage is or is not a garage.

The ordinance itself contains the following definition: "A garage, for the purpose of this ordinance, is defined as any building or place used in whole or in part for the sale or the storage for hire of automobiles, motor cycles, electric cars or other motor vehicles, and wherein gasoline, oils or electric energy for the propulsion of such vehicles is dispensed or stored."

There is a wide variety of opinion as to whether this definition covers a salesroom with a service station in connection, or a salesroom without any service station, or whether it covers a private garage where a part is rented for cars or used to store gasoline. Some of the dealers are paying under protest, but others are waiting for authentic information.

Demands for a clear definition of a garage are passed by the license inspectors to the commissioner of finance, who introduced the ordinance, and by him are handed on to the city attorney.

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

Wm. A. Beal has become affiliated with the Nordyke & Marmon Co., Indianapolis, as traveling representative.

Joseph A. McKenny has resigned his position with the Dayton Buick Co., Dayton, O., to become sales manager of the Standard Motor Car Co., Dayton, Chalmers dealer.

Frank Swap has been appointed service manager of the More Automobile Co., St. Louis, Marmon distributor.

G. A. Horton has become manager of the automobile painting department of the Great Western Motor Car Exchange, St. Louis.

George H. Phelps, who has been assistant to George C. Hubbs, assistant general sales manager of Dodge Bros., has been appointed director of advertising. He will have charge of all matters concerning the advertising department and also of sales promotion work.

R. S. Hord has been appointed head of the White factory branch in Portland, Ore.

A. E. Houghton, district representative for Dodge Bros. in the Mountain States territory, with headquarters at 1608 Broadway, Denver, who has for three months been in charge of both the Denver and Omaha districts, has been succeeded in the Denver office by his assistant, C. A. Biggs. Houghton will make his headquarters in Omaha exclusively and concentrate his work upon the larger territory handled from that point.

Richard T. Robinson, for many years secretary of the J. I. Case T. M. Co., Racine, has resigned and will move his residence to California. He is succeeded by W. F. Sawyer, who has been associated with the Case company for fourteen years and until now was manager of the sales department. Ellis J. Gittings succeeds Sawyer and R. B. Coleman is promoted to manager of the collection department.

Samuel M. Beatty has been transferred by the Goodyear Tire & Rubber Co. from the managership of the branch at Providence, R. I., to a position at the factory in the sales promotion department. He is succeeded by Edward J. Smith, who had been manager of the branch at Hartford, Conn.

T. E. Byrne has been placed in charge of the retail department for Hupmobiles and Saxons of the Higgins-Southerland Co., Indianapolis. Byrne was for some time associated with the Cole and National companies.

Edgar Updyke, who has been connected with the sales end of American, Marion, Stutz and other cars, has been appointed sales manager of the Wilson Automobile Co., Scripps-Booth and Enger distributor in Indianapolis.

L. E. Manley has resigned the sales managership of the Adams-Oakland Co., Pittsburgh, and now occupies a similar position with the Woods-Oakland Sales Co., Cincinnati.

E. W. Bartow has been appointed sales manager of the Hanson-Peacock Corp., 1495 Bedford avenue, Brooklyn, National and Jeffery distributor.

W. M. Payne, formerly with the Automobile Buyer's Reference, New York, has resigned to become factory representative of the Rex Ignition Mfg. Co., Brooklyn; he will look after the interests of Rex spark plugs



F. C. CARTER
Herff-Brooks, Boston

District Representatives

XXX

This is No. 30 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

F. C. Carter, who is district representative of the Herff-Brooks Corp. with headquarters in Boston, entered the automobile business in 1902, as sales manager for the Conrad Motor Carriage Co., Buffalo. In 1904 he became manager of the D. H. Lewis Motor Co., Buffalo, and during 1905 and 1906 was sales manager of the E. H. V. Co., Middletown, Conn. From 1907 to 1912 he was manager of the Poppenberg Motor Car Co. In 1913 he became identified with the Marathon Motor Works, holding the position of factory representative, and in 1914 he went with the Herff-Brooks Corp. as eastern district manager, which position he now holds.

in Illinois with headquarters at 3221 North Clark street, Chicago.

New Scale of Gasoline Prices

MILWAUKEE, October 25 — The Bartles-Maguire Oil Co., one of the largest independent jobbers of gasoline and other petroleum products in Wisconsin, has issued notice to its customers in Milwaukee that owing to the shortage of high-grade crude oils it can no longer sell straight run distilled 62 deg. gravity gasoline to compete with the 59 deg. gravity sold by others. In consequence the company offers a new grade, designated 59 deg. gravity gasoline. The new scale of prices that has been put in effect follows:

Gravity	Filling Station	Tank Wagon	
		Delivery	100 Gal. Del. or More
59 deg.....	\$12.5	\$11.6	\$10.6
62 deg.....	13.5	13.0	12.0
65 deg.....	16.5	16.0	15.0
70 deg.....	19.5	19.0	18.0

It is expected that the other independent jobbers, four in number, will follow suit in order to make uniform the prices for fuel in competition with the

Standard. Nearly 125 filling stations are operated by the jobbers in various parts of Milwaukee. Garages which sell gasoline to their customers are charging approximately 1 cent over filling station price, thus making a margin of about 2.9 cents per gal. At this rate very little profit is made, the garage keepers say, because of the losses due to evaporation and other waste that is unavoidable in handling.

Islands of Safety for Boston

BOSTON, October 22—It is understood that the Boston street commissioners have abandoned the plan to make every motor car stop whenever a street car stops anywhere in the city, against which motorists and dealers protested at a hearing two weeks ago. Instead, the commissioners are now trying to work out what will be termed "Islands of Safety" at certain streets where lines will be painted on the street surfaces and motorists or drivers of other vehicles will not be allowed to cross the spaces while people are taking refuge there.

Dealer Factory Visitors of the Week

PACKARD MOTOR CAR CO.
E. C. Anthony, Earle C. Anthony, Inc.,
Los Angeles
M. B. Aultman, Aultman Motor Co.,
Jacksonville
H. C. Bacon, Packard M. Car Co. of Chicago
W. L. Cowan, Ontario Motor Car Co., Ltd.,
Toronto, Ont.
R. R. Campbell, Packard Cleveland M. Co.,
Cleveland
J. G. Couch, Imperial M. C. Co., Ltd.,
Nashville
James S. Frazer, Imperial M. C. Co., Ltd.,
Nashville
John DoranSpokane
Harry TwitchellSpokane
C. R. Ryan, Lafayette Auto Co.,
Lafayette, Ind.

H. E. Stowell, Stowell M. C. Co., Syracuse
F. G. Pennal, Comet Motor Co., Ltd.,
Montreal, Canada

STUDEBAKER CORP.

John DoshierCarmi, Ill.
Joseph L. OrganCarmi, Ill.
Joseph S. DonovanBoston, Mass.
C. R. Hough, Commercial A. & S. Co.,
Washington, D. C.
Col. W. C. Long, Commercial A. & S. Co.,
Washington, D. C.
O. E. OlsonOlds, Ia.
F. H. PeckGrand Rapids, Mich.
J. H. SmithDawson Springs, Ky.
P. E. StanleyAlbion, Ind.
Wm. StoddenHancock, Mich.
Neal StiversWhite Plains, Ky.
R. D. WheatPortland, Ind.

Pittsburgh's First Fall Show Brings Boom Prediction

Though Sales Have Been Slow, Dealers Expect 1916 Will Bring a Big Spurt—Women Drivers Increase

PITTSBURGH, October 25—Pittsburgh's eleventh annual automobile show opened Saturday night, October 16, in Motor Square Garden, with the Pittsburgh Italo Orchestral Band furnishing inspiration to the initial crowd of more than 2,000 people. The show is proving a marked success in several ways. First, it has demonstrated to the motor car world that a fall show in Pittsburgh is decidedly the thing. Last year there was still a little question in the minds of some as to the wisdom of making a big fall exhibit. Last week, with the glorious October weather that is now on and the increasing crowds that are attending the show every day and evening, there is a general feeling that the fall show has come to stay.

Showed 50 Makes

The first and most important feature of this particular show is the show committee. The committee is not only experienced in handling automobile shows but every single member has been an advocate of the fall show for several years. The committee arranged with the weather man for seven days of the finest kind of autumn weather that could be procured and not a sprinkle has occurred to dampen their efforts in this direction. This committee, to whom so much credit belongs, is composed of Frank D. Saupp, of the Peerless and Hupp agency, president; John J. Bell, manager; W. W. Bennett, of the W. W. Bennett Motor Car Co., treasurer; Earl Kiser, of the Winton agency; E. J. Thompson, of the E. J. Thompson Co.; W. Murray Carr, of the Franklin agency; L. C. Myers, of the Waverly electric agency, and Roy McAllister, of the Cadillac agency, directors.

More than 50 makes of cars are exhibited. The show is put on under the auspices of the Automobile Dealers Association of Pittsburgh. It is interesting to know that more than one-half of the exhibits show a working chassis. In other exhibits luxurious models of electric and gasoline cars are attracting a large part of the attention, especially from the women. The attendance of ladies, by the way, is much the largest that has ever been seen at a show in this city. This is manifested even more in the evening crowds than during the afternoons. On several evenings this week the attendance has shown a gain of from 1,500 to 2,000 people over the corresponding show night of last fall, and a large

proportion of this increase was made up of women.

This is right in line with the reports which have been received from all agencies this summer to the effect that the number of women drivers this year has been fully three times as large as in previous years. Both gasoline and electric agencies are increasing their trade rapidly among Pittsburgh's women, and at this show there is being made a large number of selections by representative women of this city.

The show committee this year took unusual pains to advertise the show and to seek the presence of out-of-town dealers. As a result dealers from all over western Pennsylvania, eastern Ohio and West Virginia came pouring into Pittsburgh. Many of them are staying for two or three days to get a thorough line-up of the exhibits and the prospects for doing business next year. Among the towns which were prominently represented in this way were Greensburg, Johnstown, Sewickley, Rochester, Beaver Falls, Butler, Uniontown and New Castle, Pa.; Wheeling, W. Va., and Stuebenville and East Liverpool, O.

Pittsburgh Plants Roaring

Two things in a general way are brought out at the show. One is that the reports from dealers all through Tri-state territory indicate that sales the past year have fallen off slightly. Pittsburgh is a large distributing center, covering the territory within a radius of 100 to 150 miles. There are, however, many agencies which are exhibiting and which cover only Allegheny, Butler, Washington, Westmoreland, Greene, Somerset and Fayette counties in western Pennsylvania. A few agencies are limited to Allegheny county alone.

This Greater Pittsburgh district was hit when the European war broke out. With the Stock Exchange closed and all industries cutting things to the limit, it was difficult to sell cars last fall or winter. Things brightened up a little in the spring, but spring and summer business was decidedly slow.

Only within the past three months, when the steel business and the enormous orders for war munitions have started Pittsburgh plants to going at full capacity, has the motor car business shown anything like its old-time form. On this account the reports of agencies at the show indicate that probably the

sales of automobiles in the Greater Pittsburgh district this year have been about 75 per cent of the previous 12 months.

The other fact which stands out very conspicuously in conversation with dealers is that they all anticipate a boom business the coming year. Pittsburgh steel plants are now running at capacity. The coal and coke industries all through the Pittsburgh district are making 95 per cent to 98 per cent of capacity. All kinds of manufacturing plants which can make war munitions are extremely busy. Other factories are catching the spirit and are adding to their payrolls every week. This is especially true of the big window glass industry in this district.

Optimism In the Air

Railroads are doing probably 50 per cent more business than six months ago, and railroad payrolls are growing rapidly. The jobbing business is decidedly better. In all the industrial towns of the Pittsburgh district the retail business is coming up also, and it cannot be longer than a few weeks until the individual buyer in all lines in this big section will be on a strictly prosperity basis.

This accounts for the extreme optimism which is prevalent among dealers at the show. They anticipate by far the best business in 1916 of any year since 1907 and they are going to make their purchases of cars with this in view.

A feature of the displays is the unusually large number of medium-priced cars on exhibit and the interest that is being aroused in these machines.

The show is very largely a wholesale exhibit. A few retailers are exhibiting which have a limited territory, but most of the larger agencies are trying to interest not only Pittsburgh but the territory within a radius of from 50 to 150 miles. As the next largest distributing point to Pittsburgh is Cleveland, this Tri-State territory, with its tremendous iron and steel, coal and coke, oil and gas, and the window glass industries, offers a magnificent field for sales next year.

Closed Car Enigma

The show committee is considerably surprised by the small number of closed cars exhibited and are unable to account for the falling off in exhibits in this line compared with last year. This is the more strange because several agencies, among them the Winton, have sold more closed cars this year than last. The interest of the crowds is centered chiefly in the exhibit of open cars.

A few electrics are seen at the show. There are now five electric agencies in this city, the Detroit, R. & L., Waverly, Ohio and the Woods. These dealers have had an unusually good year considering the bad times and their sales average from 10 to 25 per cent ahead of last year. The higher-priced electrics, costing from \$1,900 to \$2,300, are even

better sellers this fall than the cheaper cars of this type. Electric dealers are a unit in saying that the prospects for a big year in 1916 are the best ever.

The accessory exhibits at the show are unusually small. There are two reasons given for this falling off. One is that accessory men have never been enthusiastic about the results they obtained from an exhibit at these shows. The other is that accessory dealers this year were very slow in making applications for space. As a result the show committee, which was crowded with requests for space from automobile agencies and manufacturers, leased a large amount of the regular accessory space for cars. Later on the accessory men woke up, but it was too late. The accessory business in Pittsburgh is practically all done by special dealers in that line.

A feature of the show is the increasing interest shown by business and professional men, especially the latter, in runabouts, and with prosperity returning to Pittsburgh larger sales than ever of these cars are predicted for next year.

The official list of exhibits follows:

PLEASURE CARS

Averman-Lynn, Inc., Lozier and Chandler; Adams-Oakland Co., Oakland; Apperson Bros. Motor Car Co., Apperson; Eddie Bald Motor Car Co., Hudson; W. W. Bennett Motor Car Co., King; Buick Motor Co., Buick; Bishop & Ports, Inc., Woods electric; Briscoe Motor Co., Briscoe and Marlon; Center Avenue Garage, Kissel and Milburn electric; Davis Motor Car Co., Davis.

Aaron Dero Motor Car Co., Studebaker; East End Auto Co., Waverly electric; Ford Motor Co., Ford; Franklin Motor Car Co., Franklin; Hilland Automobile Co., Peerless; Dodge and Hupmobile; Hinks Automobile Co., Crawford; Interstate Auto Sales Co., Interstate.

The Klingler Co., Paige; Locomobile Co., Locomobile; L. G. Martin & Son, Jeffery; Miller Auto Co., Auburn; Madison Motor Sales Co., Madison; McAllister Bros., Cadillac; McCurdy-May Co., Pierce-Arrow; McDowell, J. M., Ohio electric.

Oakmont Motor & Boat Co., Allen; Oldsmobile Co. of Pittsburgh, Oldsmobile; Poffingerberger Motor Car Co., Marmon and National; Pullman Taxi Co., Empire; Pullman Sales Co., Pullman; Packard Motor Car Co., Packard; Pittsburgh Haynes Auto Co., Haynes; T. M. Pepperday Co., Crane-Simplex.

R. & L. Electric Sales Co., R. & L. electric; Shriver-Wall, Inc., Chevrolet and Monroe; Standard Steel Car Co., Standard; Sun Auto Sales Co., Sun Light Six; Scottdale Auto Co., Stearns; E. J. Thompson Co., Scripps-Booth.

Winton Motor Car Co., Winton; Wyckoff Motor Sales Co., Chalmers and Reo; The White Co., White; Williams-Hasley Motor Car Co., Mitchell; Westcott Motor Sales Co., Westcott.

ACCESSORIES

Auto Specialties Co., Anderson-Henderson Co., Bothwell, Wm., Campbell-Niedringhaus Co., Doubleday-Hill Electric Co., E. & S. Dimmer Co., Gasoline Supply Co., Croo, W. S., Hoover & Diggs Co., Jackson Motor Supply Co., Arthur E. Kent Co., Kaufmann & Baer Co., Logue Bros., Marathon Tire Sales Co., Pittsburgh Auto Equipment Co., Union Electric Co.

Troy Expects 700 Sales as Result of Fall Show

Closed Cars and Detachable Tops Feature of Sales at First Autumn Exhibit—Electric Cars Not Much in Demand

TROY, N. Y., October 25—Troy automobile dealers are elated over the success of the sixth annual show, which closed at the State Armory last Saturday night. It proved not only to be the largest show the Troy dealers have ever had, but the best from a financial point of view. Dealers have in their pockets many orders and a great many "prospects" and they expect to close these out shortly and deliver cars.

It is estimated by a dealer who had made a canvass of the others that not less than 700 new cars will be sold in the vicinity of Troy during the next few weeks as a result of the show. Orders from the show on Wednesday night alone amounted to more than 250 cars, according to a conservative dealer's estimate.

Wednesday was the big night of the show. The drill shed of the armory was filled to its capacity, not less than 3,000 paying admission.

"It was the first fall show and we will doubtless have them in the fall hereafter," said Frank M. Baucus, general manager of the show, "if the manufacturers keep on bringing out their new models in the summer. We find that the fall months are better for the show. The farmer has made his harvest, he has money to spend, and we found here that he was a most liberal spender. It is the best time of the whole year to catch the farmer, and while we were after orders from city people as well, we knew that we would find many farmers in the crowds that thronged the show nightly.

"It has been a good show for closed cars. Many were sold on the floor and many new tops were purchased, so that cars which have been run all summer may be operated during the winter. The possibilities of the closed cars were demonstrated to people who never dreamed that they would be able for a small outlay of money to ride comfortably in wintry weather."

Other dealers are very optimistic over the results of the show. They believe that increased business will result. Many of the dealers' territory extends far from the confines of Troy, embracing the counties of Schenectady, Saratoga, Warren, Essex. Several other dealers take in Rensselaer county as well as some of the down-river counties, and not a few of them go as far west as Utica, taking in the Mohawk Valley towns and cities.

Troy as a distributing center has

grown considerably in the past two or three years. Many new agencies have been established but the majority of the business is done by retailers, although there are several large distributors.

The Troy show was a retail proposition. In one instance a Sand Lake farmer said he liked a certain car. Early in the evening he made a thorough examination of it and several times during the evening he was back at the booth with his wife looking it over. The dealer's salesman talked with the man for some time and finally the prospective buyer said: "If I could get someone to run me out home with this car tonight I'd buy it, and I've got the cash right here."

One of the exhibitors at the show was the Albany Garage, which has branches in Troy and Schenectady. The concern, which is the largest of its kind in this section of the state, handles the Hupmobile, Peerless, Simplex and Ford. The order for 1916, it is understood, is for 2,250 Fords. The concern sold more than 1,800 Ford cars in its three branches during 1915. Albany, the next largest distributing point to Troy, was well represented among the exhibitors.

No special drive is being made in this vicinity on electric cars, and while there are a number of them being sold right along the preference seems to be at this time for gasoline cars. The fact that the price of current is high may be one of the controlling features, but the fact remains nevertheless that where one electric is sold 25 gasoline propelled cars are disposed of.

The exhibitors follow:

The Troy Motor Co., Briscoe; Charles W. La Dow, Cadillac; Franklin Motor Car Co., Franklin; L. R. Mack, Packard; Scott D. Nichols, Inc., Dodge and Reo; Tri-City Motor Co., Inc., G. M. S. truck and Vim light delivery car; William L. Schupp & Sons, Commerce and Federal trucks; C. H. Abbott, Willys-Knight and Overland.

International Motor Car Co., Mack and Sauer trucks; Albany Garage, Ford, Hupmobile, Peerless and Simplex; Cornelian Car Co., Pullman and Cornelian; Aird Motor Co., Inc., Mitchell; West Side Garage, National and Mercer; Eugene Thibodeau, Stanley steamer; E. H. Burnelle, Trumbull.

Allen T. French, Chalmers; George H. Snyder, Stearns-Knight; Ryan's Garage, Locomobile; Payne Auto Co., Studebaker; Troy Carriage Works, Rausch & Lang electric and Case; Illum Garage, Oldsmobile and Maxwell; Listman-Stratton Co., Hudson and Chevrolet; S. B. Ketchum Co., Buick.

George A. Hollinger, Grant; Wilbur Auto Sales Co., Kissel; Wagar & Bronk, King, Chandler and Saxon; Arthur C. Pilcher, Paige; Maccar Sales Co., Maccar trucks; Faxon Co., Inc., Jeffery.

The accessory exhibitors were:

Kay & Coleman, A. C. Salisbury, William T. Fitzgerald, Standard Oil Co., New York; Charles H. Gardner, J. M. Warren & Co., G. Hinsdill Electro Co., Albany Hardware & Iron Co., William D. O'Brien, Bullock-Kenny Co., Orolo Mfg. Co., Dan-Mar Corp., Troy Electrical Co., the Wonder-Mist Co., Rensselaer Vulcanizing Co., Troy Spring Works, H. W. Boudey, DuBols Machine Shop, Cox Brass Mfg. Co.

PACKARD SURPLUS \$2,000,000 AHEAD OF LAST YEAR

DETROIT, October 22—During the fiscal year ending August 31, 1915, the surplus of the Packard Motor Car Co. was nearly two millions ahead of the total at the end of the 1914 fiscal year. It totaled \$3,713,747.22, as compared with \$1,797,820.42 in the previous fiscal year. The assets of the company were \$21,814,153.71, which is \$3,850,523.09, or over 20 per cent greater than for 1914.

Among the assets one of the items which shows the greatest increase is that for tools, the total amount credited to the account being \$1,194,101.65, or \$522,089.70 more than in 1914. This, of course, is due principally to the fact that the construction of sixes and fours has been abandoned and that entirely new tool equipment was needed for the making of the twelves.

The next item which shows the biggest increase is that of construction work, which has passed the \$500,000 mark, while in 1914 it totaled less than \$17,000. The raw material account shows an increase of over \$1,000,000, totaling \$7,423,875.93. This includes not only the raw material, but also completed cars, work in progress on cars or trucks. The balance sheet is given herewith.

PAGE HEADS NEW DEPARTURE

BRISTOL, CONN., October 22—DeWitt Page was elected president of the New Departure Mfg. Co. of this city as successor to Albert F. Rockwell, founder of the concern, at a meeting of the board of directors held here October 19. Rockwell retains his interest in the company but retires from its active management. Other officers elected are: Vice-president, Frank P. Furlong; treasurer, C. T. Treadway; secretary, A. C. Hitchcock. These officers and Charles F. Pope and E. R. Burwell constitute the new directorate.

Townsend Gasoline Tractor Coming

DELOIT, WIS., October 25—The Townsend Mfg. Co. is bringing out a gasoline tractor for general purposes. It is propelled by a gasoline engine rated at 10 to 20 horsepower and is built in several types. The tractor may be used for plowing, seeding, cultivating and similar work, as well as for filling silos, hauling farm loads, etc.

Gray & Davis Increase Capital

BOSTON, October 25—Because of constantly increasing business, Gray & Davis, Inc., has enlarged the capitalization of the company from \$1,750,000 to \$2,000,000. A new issue of capital stock amounting to \$250,000 has been authorized.

Monroe Not To Move

FLINT, MICH., October 22—The report published in Toledo to the effect that the Monroe Motor Co. is to locate in Toledo, is declared to be entirely untrue by President R. F. Monroe. "We have not contemplated moving from here and the report is without foundation."

Garford Worm Axle Explained

PHILADELPHIA, October 22—Owners and drivers of Garford trucks to the number of about 50 assembled at the service station of the Garford Philadelphia Co. and listened to an instructive talk on the worm-drive rear axle used in the Garford model 75 1-ton truck. R.

Factory News of the Week

E. Chamberlain, manager of the station, addressed the meeting, calling attention to the advantage of instructive gatherings, and E. A. Shelly, of the Sheldon Spring & Axle Co., Wilkes-Barre, discussed on the points of the axle.

LAVIGNE GEAR REORGANIZES

RACINE, WIS., October 25—The Lavigne Gear Co. has been reorganized and has put into effect an extension program which will practically double its capacity. The name of the corporation has been changed to Lavigne Gear Co., to simplify pronunciation. Officers are: President and treasurer, Herman A. Uihlein, Milwaukee; vice-president, P. B. Wohlrab; secretary, D. L. Robertson; sales and advertising manager, E. M. Caskey.

PARTIN-PALMER 1916 LINE HAS THREE CARS

CHICAGO, October 25—For 1916 there will be three Partin-Palmer cars turned out by the Commonwealth Motors Co., Rochelle, Ill. The leader will be a light five-passenger car selling for \$675 and called model 32. There will also be a six-passenger at \$975 and a roadster at \$495. The model 32 will have a four-cylinder motor $3\frac{1}{2} \times 5$ on three-point suspension, block cast, with separate cylinder heads, splash lubrication, Connecticut ignition and thermo-siphon cooling. The axle is floating and the rear springs are three-quarter elliptics, underslung. The wheelbase is 110 in. and the tires $32 \times 3\frac{1}{2}$, non-skids in the rear. Standard equipment includes starting and lighting.

New Ford Canadian Shop

FORD, ONT., October 23—By January 1 a new machine shop, 700 x 45 ft., and a foundry are to be ready for occupancy by the Ford Motor Co. of Canada, Ltd. This will give employment to over 500 more men. Now there are 1,920 on the payroll—1,730 in the shops and 190 in the offices.

Comparative Financial Statement of the Packard Motor Car Co.

	ASSETS			
	1912	1913	1914	1915
Real estate—at cost.....	\$285,312.49	\$285,460.21	\$285,864.21	\$370,047.88
Buildings	2,084,865.81*	2,063,784.48	2,140,259.05	2,082,763.21
Machinery	1,145,381.22*	1,137,276.24	1,094,754.36	1,464,294.68
Equipment	1,041,459.64*	1,039,491.08	979,774.36	983,534.32
Fixtures, including office furn..	245,766.15*	290,041.89	307,475.94	327,656.49
Tools	250,000.00*	250,000.00	672,011.95	1,194,101.65
Construction work in progress.	30,803.34	14,025.38	16,881.81	521,388.31
Development—Drawings, patterns, models, etc.....	138,000.00*	180,870.00	342,438.58	429,443.63
Rights, privileges, franchises and inventions	1.00†	1.00	1.00	1.00
Investment in branch selling companies	1,446,079.02	1,481,893.61	1,515,288.87	1,916,225.16
Raw material, work in progress and finished vehicles.....	5,351,217.23	8,136,024.99	6,394,864.56	7,423,875.93
Stock option contracts with employes	112,200.00	42,500.00	201,950.00	186,200.00
Investments in stocks, bonds and short time securities....	38,232.50	38,232.50	248,462.50	1,385,387.50
Cash	1,030,513.95	1,374,951.12	2,462,464.45	2,289,111.43
Vehicles in transit to dealers..	340,090.27	191,724.05	279,308.26	53,102.95
Vehicles in transit to branches.	672,136.23	411,761.32	263,146.11	577,306.29
Accounts receivable	132,290.80	187,708.20	138,196.16	137,288.92
Bills receivable	188,095.03	60,261.16	55,893.61	33,500.00
Expense paid in advance.....	130,864.18	153,840.87	97,083.81	94,924.36
Bills receivable from branches.	.....	.....	467,500.00	345,000.00
Total	\$14,663,298.86	\$17,339,848.10	\$17,963,620.62	\$21,814,153.71

*1912—Depreciation for current year deducted, aggregating \$1,230,485.85.

†1912—Reduced by action of Board of Directors from \$3,274,958.89 to \$1.00.

	LIABILITIES			
	1912	1913	1914	1915
Capital stock—				
Common capital stock.....	\$5,000,000.00	\$5,000,000.00	\$7,065,300.00	\$7,065,300.00
Preferred capital	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00
Debenture notes due Dec. 1, 1916	2,000,000.00	3,000,000.00	3,000,000.00	3,000,000.00
Accounts payable	1,175,710.33	1,154,874.94	886,780.98	2,335,907.57
Reserves—Accrued for interest, taxes, etc.	288,804.71	178,716.94	213,719.22	330,213.34
Deferred payments on real estate purchased for retail selling agencies .....	.....	.....	.....	368,985.58
Surplus—After deducting all charges	1,198,783.82	3,006,256.22	1,797,820.42	3,713,747.22
Total	\$14,663,298.86	\$17,339,848.10	\$17,963,630.62	\$21,814,153.71

N. B. Of the common stock as shown in the report for 1915, there are 70,653 shares outstanding and 9,347 unissued. Of the preferred shares, there are 50,000 outstanding and 30,000 unissued. Par value of both common and preferred shares is \$100.

MOTOR WORLD GUIDE

SPECIFICATIONS OF LEADING AMERICAN CARS BROUGHT UP TO DATE

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
ABBOTT-DETROIT												
K	4-4½x5½	32.4	Eismn	Zenith	A-Lite	Disk	3	116	34x4	1,785	....	....
L	4-4½x5½	32.4	Eismn	Zenith	A-Lite	Disk	3	121	36x4½	2,085	....	2,085
F	6-3½x5½	33.75	Eismn	Zenith	A-Lite	Disk	4	130	35x4½	2,190	2,190	2,290
H	8-3½x5	33.8	Remy	Zenith	A-Lite	Disk	5	121	35x4½	....	....	1,950
ALLEN												
37	4-3½x5	22.5	Watha	Stmbg	Watha	Cone	3	112	32x3½	795	795	....
APPERSON												
6-60	6-4½x5	43.8	Remy	Rafid	Watha	Band	3	135	37x4½	....	....	2,350
6-16	6-3½x5½	29.4	Remy	Rafid	Watha	Band	3	122	34x4	....	1,485	1,550
8	8-3½x5	31.2	Remy	Rafid	Watha	Band	3	128	34x4	1,850	....	1,850
ARRENZ												
25	4-3½x5	16.9	....	....	....	Cone	3	108	30x3½	....	675	....
ARGO												
1916	4-2½x4½	12.1	A. Kent	Argo	Disco	Cone	2	96	28x3	385	435	....
AUBURN												
4-38	4-3½x5	24.0	....	Rafid	....	Cone	3	114	34x4	985	985	....
6-40-A	6-3½x5	29.45	....	Rafid	....	Cone	3	126	35x4½	1,550	....	1,550
AUSTIN												
96	6-4½x6	48.6	Watha	Master	Watha	Disk	6	141	34x4½	3,600	3,600	3,600
BAUER												
B	4-4½x5	36.1	Mea	Shblr	Emm	Disk	3	110	34x3½	875	1,000	....
BELL												
A-16	4-3½x5	19.6	A. Kent	Carter	Disco	Cone	3	112	31x4	775	775	....
BRISCOE												
4	4-3 7-16x5½	18.9	Remy	Mayer	Apico	Cone	3	114	32x3½	750	750	....
8	8-3 x3½	28.8	Remy	Mayer	Apico	Cone	3	114	32x3½	1,950	950	....
BUICK												
....	6-3½x5	33.7	Delco	Marrel	Delco	Cone	3	130	36x4½	1,450	....	1,485
....	6-3½x4½	25.3	Delco	Marrel	Delco	Cone	3	115	32x4	950	985	....
CADILLAC												
53	8-3½x5½	31.2	Delco	Own	Delco	Disk	3	122	36x4½	2,080	2,080	3,080
CAMERON												
....	6-3 x5	21.6	A. Kent	Zephyr	Apico	Cone	3	122	32x4	1,000	1,000	....
CASE												
35	4-4½x5½	29.0	Bosch	Rafid	Watha	Disk	3	120	35x4½	....	1,600	....
40	4-4½x5½	33.4	Bosch	Rafid	Watha	Disk	3	124	37x4½	....	1,800	2,000
25	4-3½x4½	22.5	Watha	Stmbg	Watha	Disk	3	115½	34x4	....	1,350	....
CHADWICK												
19	6-5 x6	60.0	Bosch	Own	Watha	Band	4	119	37x5r	5,500	5,500	5,500
CHALMERS												
6-48	6-3½x5½	29.4	A. Kent	Rafid	Entz	Disk	3	126	34x4½	....	....	1,550
M-6	6-4 x5½	38.4	Bosch	Rafid	Entz	Disk	4	132	36x4½	....	2,175	2,175
6-40	6-3½x5	23.4	A. Kent	Rafid	G & D	Plate	3	124	34x4	1,350	....	1,350
CHANDLER												
15	6-3½x5	27.3	Bosch	Rafid	G & D	Disk	3	120	34x4	....	1,295	....
CHEVROLET												
H	4-3 11-16x4	21.8	....	A-Lite	Zenith	Cone	3	106	32x3½	720	750	....
4-90	4-3 11-16x4	21.8	Simms	A-Lite	Zenith	Cone	3	102	30x3½r	....	490	....
COLE												
4-40	4-4½x5½	29.0	Delco	Stmbg	Delco	Cone	3	120	35x4½	1,485	1,485	1,485
6-60	6-4½x5½	48.6	Delco	Stmbg	Delco	Cone	3	136	37x5	2,385	2,465	2,465
8	8-3½x4½	39.2	Delco	Stmbg	Delco	Cone	3	126	34x4½	1,785	....	1,785
CRAWFORD												
6-35	6-3½x5	29.4	Watha	Stmbg	Watha	Disk	3	120	34x4	1,850	1,850	....
CROW												
E-62	6-3½x5½	33.7	G & D	Shblr	Emm	Disk	3	130	36x4	1,895	1,895	....
C.E.Jr	4-3½x5	19.6	Disco	Zenith	Disco	Disk	3	104	32x3½	....	725	....
CUNNINGHAM												
8	4-4½x5½	36.1	Bosch	Stmbg	Undec	Disk	3	129	37x5	....	....	3,750
DAVIS												
....	4-3½x5	22.5	Delco	Stmbg	Delco	Cone	3	112	34x4	1,165	1,165	....
....	6-3½x5	29.4	Delco	Stmbg	Delco	Cone	3	124	34x4½	....	....	1,495
....	6-3½x4½	25.3	Delco	Stmbg	Delco	Cone	3	120	34x4	....	1,250	....
DANIELS												
8	8-3½x5	33.8	Watha	Zenith	Watha	Disk	3	127	34x4½	12,350	2,350	2,350
DETROITER												
C	4-3½x5	19.6	Remy	Stmbg	Remy	Disk	3	112	32x3½	....	985	....
8	8-2½x4½	24.2	....	Zenith	....	....	....	....	....	....	1,295	....
DODGE												
....	4-3½x4½	24.2	Eismn	Stwrt	N E	Cone	3	110	32x3½	785	785	....

* 6-passenger; † 4-passenger; ‡ 3-passenger.

ABBREVIATIONS—"G & D" Gray & Davis, "Spldf" Splittorf, "A-Lite" Auto-Lite, "Watha" Westinghouse, "Shblr" Schebler, "Eismn" Eismann, "Rafid" Rayfield, "A. Kent" Atwater Kent, "Emm" Emerson, "Servn" Servison, "Undec" Undecided, "Brng" Berling, "Kngstn" Kingston, "Natl" National, "W.Lnd" Ward Leonard, "U.S.I." United States Lighting, "Conn" Connecticut, "Stwrt" Stewart, "Nwcm" Newcomb, "N E" North East.

"A-C" Allis-Chalmers, "L-N" Leece-Neville, "O M" Owen Magnetic, "B-Rhm" Bosch-Rushmore, "Frn Trs" Friction Transmission, "Mgnto" Magneto, "Tltm" Tillotson.

NOTE—The figures given in columns underneath 2-, 5- and 7-passenger, represent the list catalog prices of the models. Where a tire size is given, as for instance "37x5½r," it means that the rear tires are 37x5½ and the front are of smaller dimension.

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
KLING												
6-42	6-3½x5½	29.4	Wths	Rafid	Wths	Diak	3 123	34x4	1,750	1,750	....	....
6-42-A	6-3½x5½	29.4	Wths	Rafid	Wths	Diak	3 127	35x4½	....	....	1,850	....
LAMBERT												
48-C	4-3½x4	22.5	Briggs	Shblr	Briggs	Frn Trs	112	32x3½	....	1,200	....	....
68-C	4-4½x5½	27.2	Briggs	Shblr	Briggs	Frn Trs	117	24x3½	1,565	1,565	....	....
LEWIS												
VI	6-3½x6	25.4	Remy	Stmbg	Remy	Diak	3 135	34x4	1,390	....	1,390	....
LEXINGTON												
4-Kp	4-3½x5½	24.0	Wths	Shblr	Wths	Diak	3 115	34x4	....	1,375	....	....
6-La	6-3½x5	29.4	Wths	Shblr	Wths	Diak	3 128	34x4	11,875	1,875	....	....
LOCOMOBILE												
M-6	6-4½x5½	48.6	Bosch	Own	Wths	Diak	4 143	37x5	....	*5,100	5,100	....
R-6	6-4½x5	43.3	Bosch	Own	Wths	Diak	4 140	37x5e	....	*4,400	4,400	....
LUVERNE												
780	6-4 x5	38.4	Bosch	Shblr	Apple	Diak	3 130	36x4½	....	....	2,500	....
MADISON												
T	6-3 x5	21.6	Remy	Rafid	Remy	Diak	3 120	34x4	....	985	1,085	....
MARION												
...	8-3½x4½	31.2	Bosch	.....	G & D	Diak	3 115	34x4	1,500	1,500	....	....
...	6-3 x5	21.6	Wths	Stmbg	Wths	Diak	3 120	33x4	....	1,250	....	....
...	4-3½x5	22.5	Bosch	Rafid	G & D	Diak	3 115	34x4	....	1,250	....	....
MARMON												
41	6-4½x5½	43.5	Bosch	Stmbg	Bosch	Cone	3 132½	36x4½	3,250	3,250	3,250	....
MAXWELL												
...	4-3½x4½	21.0	Simms	Kingstn	Simms	Cone	3 102	30x3½	635	655	....	....
McFARLAN												
T	6-4 x6	38.4	Wths	Stmbg	Wths	Cone	3 132	36x4½	2,680	2,680	2,680	....
X	6-4½x6	48.6	Wths	Stmbg	Wths	Cone	3 132	36x4½	....	13,140	2,900	....
McINTYRE												
25	4-3½x5½	19.6	Bosch	Stmbg	G & D	Cone	3 106	32x3½	....	850	....	....
6-40	6-3½x4½	29.4	Briggs	Stmbg	Briggs	Diak	3 120	35x4	....	1,275	....	....
MECCA												
4	4-3½x4½	22.5	Spidf	Shblr	Disco	Plate	3 104	30x3½	....	695	....	....
MERCER												
Spdstr	4-3½x6	22.5	Bosch	Zenith	U S L	Diak	4 115	34x4	2,750	....	....	....
T-Car	4-3½x6	22.5	Bosch	Zenith	U S L	Diak	4 130	34x4½	....	*3,000	....	....
METEOR												
42	4-4 x5	25.6	A. Kent	Stmbg	Spidf	Diak	3 114	34x4	....	1,075	....	....
45	6-3½x5	33.7	A. Kent	Stmbg	Spidf	Diak	3 128	35x4	....	1,395	....	....
METZ												
22	4-3½x4	22.5	Bosch	Own	.....	Frn Trs	96	30x3	495	....	....	....
25	4-3½x4	24.2	Bosch	A W T	G & D	Frn Trs	105	32x3½	....	600	....	....
MITCHELL												
8	8-3 x5½	28.8	.....	Rafid	Wths	Cone	3 116	34x4	1,450	1,450	....	....
6 of 16	6-3½x5	29.4	.....	Rafid	.....	Cone	3 125	34x4	....	1,250	....	....
MOLINE-KNIGHT												
50	4-4 x6	25.6	Bosch	Shblr	Wagner	Cone	4 128	36x4½	2,500	2,500	2,540	....
40	4-3½x5	22.5	Conn	Shblr	A-Lite	Cone	3 118	34x4	1,375	1,375	....	....
MONARCH												
8lx	6-3½x5	29.4	A. Kent	Zenith	W. Lard	Cone	3 125	33x4	....	1,350	1,375	....
...	8-3 x5	28.8	.....	.....	W. Lard	Cone	3 125	33x4	1,500	....	....	....
MONROE												
M-2	4-3 x3½	14.4	Conn	Zenith	A-Lite	Cone	3 96	30x3	400	....	....	....
MOON												
6-40	6-3½x5	29.4	Delco	Rafid	Delco	Diak	3 125	34x4	....	....	1,475	....
6-30	6-3½x4½	25.4	Delco	Rafid	Delco	Diak	3 118	34x4	....	1,195	....	....
MORSE												
D	4-4½x5	34.2	Elsmn	Stmbg	G & D	Diak	4 127	36x4½	3,000	3,000	3,000	....
NATIONAL												
Hwy	12-2½x5½	36.3	Dixie	Rafid	Wths	Cone	3 123	36x4½	11,990	11,990	*2,020	....
Hwy	6-3½x5½	29.4	Dixie	Rafid	Wths	Cone	3 128	34x4½	11,690	11,690	*1,720	....
Newport	6-3½x5½	33.75	Elsmn	Rafid	Wths	Cone	3 134	36x4½	12,375	2,375	2,400	....
NORWALK												
F	6-3½x5½	29.4	A. Kent	Rafid	G & D	Diak	4 131	37x4	1,875	....	....	....
OAKLAND												
37	4-3½x5	19.6	Delco	Marvel	Delco	Cone	3 112	33x4	1,150	1,050	....	....
49	6-3½x5	29.4	Delco	Johnson	Delco	Cone	3 123½	35x4½	....	....	1,885	....
Spdstr	4-3½x5	19.6	Delco	Marvel	Delco	Cone	3 112	33x4	1,050	....	....	....
OLDSMOBILE												
43	4-3½x5	19.6	Delco	Marvel	Delco	Cone	3 120	33x4	....	1,085	....	....
...	8-2½x4½	26.4	Delco	.....	Delco	Cone	3 120	33x4	....	....	1,295	....
OVERLAND												
83	4-4½x4½	27.2	Mignto	.....	A-Lite	Cone	3 106	33x4	735	750	....	....
...	6-3½x5½	29.4	Spidf	.....	A-Lite	Cone	3 120	35x4½	....	....	1,145	....
OWEN												
...	6-3½x5½	33.7	Owen	Master	O M	O M	136	35x5	*3,750	13,750	2,750	....
PACKARD												
1-25	12-3 x5	43.2	Delco	Own	Bijur	Diak	3 125	36x4½	....	....	2,750	....
1-35	12-3 x5	43.2	Delco	Own	Bijur	Diak	3 135	36x4½	....	....	3,150	....
PAIGE												
6-46	6-3½x5½	29.4	Bosch	Rafid	G & D	Diak	3 124	34x4	1,295	....	1,295	....
6-36	6-3 x5	21.6	Remy	Rafid	G & D	Diak	3 112	34x4	....	1,085	....	....
PARTIN-PALMER												
20	4-3½x4	15.6	A. Kent	Muir	G & D	Diak	3 96	28x3	495	....	....	....
38	4-3½x5½	22.5	A. Kent	Stmbg	G & D	Done	3 115	33x4	1,075	....	....	....
PATERSON												
4-32	4-3½x5	19.6	Delco	Stmbg	Delco	Cone	3 112	33x4	....	1,085	....	....
6	6-3½x4½	25.4	.....	Stmbg	.....	Cone	3 117	32x4	....	....	985	....

* 6-passenger; † 4-passenger; ‡ 3-passenger.

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
PATHFINDER												
...	6-3½x5	29.4	Wths	Shblr	Wths	Disk	3 122	35x4½	1,095	1,095	....	....
...	12-3 x4	43.2	Wths	Shblr	Wths	Disk	3 122	35x4½	1,975	1,975	1,975	....
PEERLESS												
54	4-3½x5	22.5	A. Kent	Stmbg	G & D	Disk	3 113	34x4	2,000	2,000	....	....
55	6-3½x5	29.4	A. Kent	Stmbg	G & D	Disk	3 121	34x4	2,250	2,250	....	....
48-6	6-4½x6	48.6	Bosch	Own	G & D	Band	4 137	37x5	4,900	....	5,000	....
PIERCE-ARROW												
C-3	6-4 x5½	38.4	Bosch	Own	Wths	Cone	4 134	36x4½	4,300	4,300	....	....
B-3	6-4½x5½	48.6	Bosch	Own	Wths	Cone	4 142	37x5	4,900	4,900	5,000	....
A-3	6-5 x7	60.0	Bosch	Own	Wths	Cone	4 147½	38x5½	5,900	5,900	6,000	....
PILOT												
53	6-3½x5½	36.0	Wths	Stmbg	Wths	Cone	3 126	34x4	1,685	1,685	....	....
75	6-4½x6	48.6	Wths	Stmbg	Wths	Cone	3 132	37x4½	2,400	....	2,485	....
6-45	6-3 x5	21.6	Delco	Rafid	Delco	Plate	3 119	32x4	....	....	....	....
PREMIER												
6-50	6-4 x5½	38.4	Remy	Rafid	Remy	Disk	3 132	36x4½	1,985	1,985	1,985	....
PRATT												
6-50	6-3½x5½	33.7	A. Kent	Rafid	G & D	Disk	4 132	37x4½	2,150	2,150	2,250	....
PULLMAN												
Jr	4-3½x4½	22.5	Spidf	Stmbg	Spidf	Disk	3 110	30x3½	740	740	....	....
6-48	6-3½x5½	33.7	Simms	Stmbg	Wthc	Disk	4 134	36x4½	2,500	2,500	2,550	....
R-C-H												
K	4-3½x5	16.9	Bosch	B-D	W. Lard	Cone	3 110	32x3½	....	775	....	....
REGAL												
D	4-3½x5	22.5	Conn	Stwrt	Dyneto	Cone	3 115	33x4	985	985	....	....
F8	8-3 x4½	28.8	Conn	Stwrt	Dyneto	Cone	3 115	33x4	1,200	1,200	....	....
E	4-3½x4	19.6	Conn	Stwrt	Dyneto	Cone	3 106	30x3½	650	650	....	....
REMINGTON												
...	4-3½x4	15.6	A. Kent	.....	W. Lard	Cone	3 105	30x3½	695	695	....	....
Gind	8-3½x4½	31.2	A. Kent	Zenith	G & D	Disk	3 116	35x4½	1,495	....	....	....
REPUBLIC												
E	6-4½x5	43.3	Delco	Rafid	Delco	Cone	4 133	36x4½	....	12,950	2,950	....
REO												
M	6-3 9-16x5½	30.4	Remy	Johnson	Remy	Disk	3 126	34x4½	....	....	1,250	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	Disk	3 115	34x4	....	875	....	....
RICHMOND												
35	4-4 x4½	25.6	Dixie	Stmbg	Apple	Cone	3 110	33x4	1,885	885	....	....
50	6-4 x4½	38.4	Dixie	Stmbg	Apple	Cone	3 120	34x4	1,065	1,065	....	....
ROSS												
A	8-3 x4½	28.8	A. Kent	Zenith	Detroit	Disk	3 115	34x4	....	1,350	....	....
SAXON												
A	4-2½x4	12.06	A. Kent	Mayer	.....	Disk	3 96	28x3	395	....	....	....
B2	6-2½x4½	20.0	A. Kent	Rafid	Detroit	Disk	3 112	32x3½	785	785	....	....
SCRIPPS-BOOTH												
C	4-2½x4	13.3	A. Kent	Zenith	Bljur	Disk	3 110	30x3½	775	....	....	....
SPAULDING												
H	4-4½x5½	29.0	Simms	Rafid	Entz	Cone	3 120	36x4	....	1,680	....	....
SIMPLEX												
38	4-5½x6½	46.2	Bosch	Nwcm	Rahmr	Disk	4 137	37x5	....	Shaft or chain	....	....
Crane	6-4½x6½	45.9	Bosch	Nwcm	Rahmr	Disk	4 143½	37x5	....	....	....	....
SINGER												
8lx	6-4 x5½	38.4	Bosch	C. B. G	Wths	Disk	4 138	35x5	13,000	13,000	3,000	....
STANDARD												
8	8-3 x5	28.8	Wths	.....	Wths	Disk	3 121	35x4½	....	....	1,735	....
6	6-4 x5½	38.4	Wths	Zenith	Wths	Disk	3 126	36x4½	....	....	2,100	....
STANLEY												
...	Steam	....	.....	.....	.....	.....	3 130	34x4½	....	1,975	....	....
STEARNS												
L-4	4-3½x5½	22.5	Remy	Shblr	Wths	Cone	3 119	34x4	....	1,395	....	....
8-K-6	6-4½x5½	43.3	Bosch	Stmbg	G & D	Disk	4 134	37x5	....	....	....	....
8-K-8	8-3x5	33.8	Remy	Rafid	Wths	Disk	3 123	35x4½	....	....	2,050	....
STERLING												
...	4-2½x4	13.3	Conn	Holley Zenith	.....	Cone	3 102	30x3½	475	550	....	....
STEWART												
T	6-3½x5	29.4	Wths	Rafid	Wths	Disk	3 127	34x4½	11,950	....	1,950	....
STUDEBAKER												
4	4-3½x5	24.0	Remy	Shblr	Wagner	Cone	3 112	33x4	2,850	....	885	....
6	6-3½x5	36.0	Remy	Shblr	Wagner	Cone	3 122	34x4	11,000	....	1,050	....
STUTZ												
Br. Cat	4-4½x5½	36.1	Bosch	Stmbg	Remy	Cone	3 120	34x4½	2,000	....	....	....
Bulldog	4-4½x5½	36.1	Bosch	Stmbg	Remy	Cone	3 120	34x4½	....	12,250	....	....
Hind Sp	4-4½x5½	36.1	Bosch	Stmbg	Remy	Cone	3 130	33x5	....	12,250	....	....
6-Pass	4-4½x5½	36.1	Bosch	Stmbg	Remy	Cone	3 130	34x4½	....	2,300	....	....
TOURNAINE												
12	6-4 x5½	38.4	Simms	Zenith	Wths	Disk	4 124	34x4½	3,150	3,150	3,250	....
TRUMBULL												
...	4-2½x4	13.2	Dixie	Zephyr	.....	Disk	3 80	28x3	395	....	....	....
VELIE												
22-40	6-3½x4½	25.3	Remy	Stmbg	Remy	Disk	3 115	32x4	1,040	1,065	....	....
15-45	6-3½x5½	29.4	A. Kent	Stmbg	G & D	Disk	4 124	34x4	*1,450	1,400	1,450	....
VIXEN												
8-B	4-2½x4	12.0	A. Kent	Zephyr	.....	.....	3 106	28x3	395	....	....	....
WESTCOTT												
51	6-3½x5½	29.4	Delco	Rafid	Delco	Disk	3 126	35x4½	....	....	1,595	....
...	6-3½x4½	25.3	Delco	Rafid	Delco	Disk	3 120	34x4	....	1,295	....	....
WHITE												
30	4-3½x5½	22.5	Bosch	Own	Own	Plate	4 115	32x4	2,650	2,700	....	....
45	4-4½x6½	29.0	Bosch	Own	Own	Plate	4 132½	36x4½	....	....	3,600	....
WILLIS-KNIGHT												
84	4-4½x4½	27.25	Dixie	Titan	A-Lite	Cone	4 114	34x4	1,065	1,065	....	....
WINTON												
21	6-4½x5½	48.6	Bosch	Rafid	Airor Elec	Disk	4 136	37x5	3,250	3,250	3,500	....
21A	6-5½x5½	31.5	Bosch	Rafid	Bljur	Disk	4 128	36x4½	2,285	2,285	....	....

* 6-passenger; † 4-passenger; ‡ 3-passenger

CHEVROLET ADDS TO PLANT

NEW YORK, October 22—The Chevrolet Motor Co. of New York has leased the entire block front on the east side of Eleventh avenue between 55th and 56th streets, fronting 200 ft. on each thoroughfare. The Chevrolet Motor plant now covers the block front directly to the north, between 56th and 57th streets. The site will be improved with a modern factory and service building similar to the one it now occupies in this city. With the completion of the new building the facilities of the company will be more than doubled. The concern is also making large additions to its plants at Tarrytown and at Flint, Mich. Within a short time the company expects to be turning out 800 cars a day.

Chase Company Ends Fiscal Year

SYRACUSE, N. Y., October 26—The fiscal year of the Chase Motor Truck Co., Syracuse, N. Y., ended October 1, and at the meeting of directors a report was presented showing that business had increased 218 per cent over that of the preceding year. At the same time announcement was made of a new model at \$1,650 for the chassis having a capacity of 1 ton. It has a four-cylinder L-head motor, $3\frac{1}{2} \times 5\frac{1}{2}$, with automatic governor, and worm drive rear axle. The wheelbase is 140 in. and the tires $36 \times 3\frac{1}{2}$ front and 36×5 rear, solid.

Elkhart Changes Name

ELKHART, IND., October 25—The Elkhart Carriage & Motor Car Co. is the new name of the former Elkhart Carriage & Harness Mfg. Co. At the same time the name of the car has been changed and the 1916 comes out as the Elcar. The machine sells for \$775 and has a four-cylinder motor with block cast cylinders 3×5 , having the reciprocating parts made as light as possible. Cylinder heads are separate. Clutch and gear-set are a unit with the motor. Starting and lighting are effected through an Apple motor-generator and ignition through a Delco distributor. Fuel is fed by vacuum. The wheelbase is 114 in.

New Era Makes Its Debut

JOLIET, October 25—The New Era Engineering Co., Joliet, Ill., has entered the motor car field with a five-passenger touring car selling at \$660. It has a four-cylinder motor $3\frac{1}{2} \times 4\frac{1}{2}$, with the cylinder block integral with the upper half of the crankcase. Lubrication is by pump and splash and ignition by the Atwater Kent system. Drive is through a disk clutch and three-speed gearset to the semi-floating rear axle. An Allis-Chalmers starting-lighting set is fitted.

Duplex Stays in Charlotte

KALAMAZOO, MICH., October 25—According to a member of the local board of commerce, an offer of more than \$100,000 cash was recently made to the Duplex Power Car Co., Charlotte, Mich., to locate its plant here, but has been declined.

Overland to Have Block Motor

TOLEDO, October 25—To date 50,000 model 83 Overland cars have been sold. Beginning the first week in November, shipments of the second series of 50,000 will be commenced by the Willys-Overland Co. Several changes have been made in the model for this second series. Instead of having a motor with sepa-

ately-cast cylinders the power plant will be of the block type, with enclosed valves and removable cylinder heads. The bore and stroke remain the same, $4\frac{1}{4} \times 4\frac{1}{2}$, also the five-bearing crankshaft. Another change is in the upholstery. Instead of cloth, Fabrikoid will be used. Otherwise the cars will be identical with those of the first series.

Tower Truck from Greenville

GREENVILLE, MICH., October 23—R. J. Tower, of this city, is bringing out the Tower truck which is to be manufactured by a company to be known as the Tower Motor Truck Co. The first model was recently completed in Tower's machine shop and foundry. It has a Continental four-cylinder block motor, 135 in. wheelbase, Timken axles and other standard parts.

Lowell Cutter Adds Trailers

LOWELL, MICH., October 23—The Lowell Cutter Co., in business since 1885, and which has been making cutter bodies, has decided to bring out automobile trailers.

Canadian Office For Chalmers

TORONTO, ONT., October 24—The Chalmers Motor Co. has opened a Canadian office at 18 Bloor street, East, Toronto, with L. Logie as Canadian manager.



*Indicates sanction by A. A. A.

Nov. 2.....	New York City, Sheephead Bay Speedway, 100-mile race.
May 13.....	New York City, Sheephead Bay Speedway race meet.
Nov. 20.....	Phoenix, Ariz., 150-mile track meet.
May 30.....	Indianapolis, Ind., Track race meet.
June 17.....	Chicago, Ill., Speedway race meet.
June 28.....	Des Moines, Ia., Speedway race meet.
July 4.....	Minneapolis, Minn., Speedway race meet.
July 4.....	Sioux City, Ia., Speedway race meet.
July 15.....	Omaha, Neb., Track race meet.
Aug. 5.....	Tacoma, Wash., Track race meet.
Aug. 18-19.....	Chicago, Ill., Elgin road race.
Sept. 4.....	Des Moines, Ia., Track race meet.
Sept. 15.....	Indianapolis, Ind., Speedway race meet.
Sept. 16.....	Providence, R. I., Track race meet.
Sept. 30.....	New York City, Sheephead Bay Speedway race meet.

THE SHOW CIRCUIT

Oct. 18-25.....	Los Angeles, Cal., Broadway Show, Automobile Dealers Assn.
Nov. 1-3.....	Pasadena, Cal., Show, Hotel Green, Walter Hempel.
Nov. 12-20.....	Providence, R. I., Show, Automobile Dealers Assn., State Armory.
Nov. 22-27.....	Binghamton, N. Y., Annual Show, Binghamton Automobile Dealers Assn., State Armory.

Dec. 6-11.....	Springfield, Mass., Show, Auditorium. H. J. Stacy, manager.
Dec. 31-Jan. 8..	New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
Jan. 3-9.....	New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
Jan. 8-15.....	Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn.
Jan. 22-29.....	Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
Jan. 29-Feb. 5..	Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
Jan. 29-Feb. 5..	Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
Feb. 7-12.....	Kansas City, Mo., Show, Kansas City Motor Dealers Assn., Convention Hall.
Feb. 14-19.....	Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
Feb. 15-20.....	Omaha, Neb., Tenth Annual Show, Omaha Automobile Show Assn.
Feb. 21-26.....	Syracuse, N. Y., Show, Syracuse Automobile Dealers Assn.
March 4-11.....	Boston, Mass., Fourteenth Annual Show, Boston Automobile Dealers Assn., Boston Commercial Vehicle Assn.
Mar. 28-Apr. 3..	Manchester, N. H., Show, under auspices of Couture Bros.; Academy.
Sept. 21-24.....	Cleveland, O., Convention, Carriage Builders National Assn.
Jan. 25.....	Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
Jan. 26-27.....	Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
Feb. 19.....	Newark, N. J., Show.

Motor Car Securities Quotations

No quotations for the corresponding date in 1914 are available because of the closing of the Stock Exchange due to the foreign war situation.

	Oct. 23, 1915	
	Bid	Asked
Ajax-Grieb Rubber Co., com.....	300	..
Ajax-Grieb Rubber Co., pfd.....	101	..
Aluminum Castings, pfd.....	102	..
Chalmers Motor Co., com.....	155	165
Chalmers Motor Co., pfd.....	102	104
Firestone Tire & R. Co., com.....	720	750
Firestone Tire & R. Co., pfd.....	112	..
General Motors Co., com.....	372	374
General Motors Co., pfd.....	112	114
B. F. Goodrich Co., com.....	77½	79
B. F. Goodrich Co., pfd.....	110	111
Goodyear Tire & R. Co., com.....	332	337
Goodyear Tire & R. Co., pfd.....	110	112
International Motor Co., com.....	46½	48½
International Motor Co., pfd.....	68	72
Kelly-Sprgflld Tire Co., com.....	247	256
Kelly-Sprgflld Tire Co., 1st pfd.....	91½	93
Kelly-Sprgflld Tire Co., 2nd pfd.....	225	235
Maxwell Motor Co., com.....	74	75½
Maxwell Motor Co., 1st pfd.....	97	99
Maxwell Motor Co., 2nd pfd.....	56	57
Miller Rubber Co., com.....	235	242
Miller Rubber Co., pfd.....	109	110
Packard Motor Car Co., com.....	135	140
Packard Motor Car Co., pfd.....	100	104
Peerless Motor Car Co., com.....	122	130
Peerless Motor Car Co., pfd.....	92	94
Portage Rubber Co., com.....	55	56
Portage Rubber Co., pfd.....	93½	94½
*Reo Motor Truck Co.....	19½	21
*Reo Motor Car Co.....	38½	40
Stewart-Warner Speed. Corp., c.....	74½	76½
Stewart-Warner Speed. Corp., p.....	106	..
Studebaker Corp., com.....	188	189½
Studebaker Corp., pfd.....	111	113
Swinehart Tire & R. Co.....	90	92
U. S. Rubber Co., com.....	53½	54½
U. S. Rubber Co., 1st pfd.....	106	107
White Co., pfd.....	110	..
Willys-Overland Co., com.....	258	260
Willys-Overland Co., pfd.....	108	110
Paige-Detroit Motor Car.....	440	460
Regal Motor Co., pfd.....	13	17

*Par value \$10; all others \$100 par value.

MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 5

New York, November 3, 1915

Ten cents a copy
Two dollars a year



STEERING A SAFE COURSE

FOR the jobbers, dealers and garagemen who attend the Grand Central Palace exposition in January **MOTOR WORLD'S Before Show** issue will serve as does the chart to a mariner. It will permit the tradesman who visits New York's sixteenth annual automobile show to chart his course in advance—to catalog in his mind with *definiteness* the cars and accessories which in his judgment deserve investigation. It will serve as a time-saver for the busy merchants of the selling branch of the industry when time economy is of vital importance.

¶ If your product is good, **IT IS WORTH TALKING ABOUT**. If you have a logical appeal that means profit making opportunities for jobbers, dealers and garagemen, and if you want your facts considered seriously by this vital merchandising force, at the psychological moment when minds are being made up regarding what lines will be added and what lines dropped for the ensuing year—you should take advantage of

this extraordinary merchandise issue. It will contain at least 300 pages, and be in the hands of more than 15,000 jobbers, dealers and garagemen *one week before the doors of the Grand Central Palace open* upon New York's sixteenth annual car and accessory show.

¶ It will be the most comprehensive book ever issued in connection with the merchandise phases of the industry. It will acquaint the live jobbers, dealers and garagemen with everything that is new, novel and worth while. It will be a compendium, a purchase guide and an authoritative buying directory for use throughout the entire year.

¶ **MOTOR WORLD** readers are the big purchasers at wholesale of a large percentage of all products of the industry. To make forceful appeal to them in the **Before Show** issue is the season's best opportunity. It is *your* opportunity.

Before Show Issue—Out December 22nd

THE 42^{CM.} WOULD TEAR ITSELF TO PIECES —

the first time discharged if it were not for the recoil chambers (AA) protecting its delicate mechanism against terrific and repeated shock and vibration. Similarly a motor car with no springs protecting its mechanism against the interminable shock of the road would, at the end of a hundred miles, be fit only for the junk man.

DANN INSERT "The Inter-leaf Shock Absorber"

"A shot to a fort" is sufficient from this stocky 42 centimeter gun which has a value running into six figures. Over \$1000 is the cost of a single discharge.

There are adjustments on this gigantic engine of destruction as delicate as those of the Yerkes telescope. Due only to recoil chambers (AA) and the watchful inspection they undergo, is it possible to fire this field piece without tearing itself and everything about it to pieces. After every shock the recoil chambers are minutely examined, for the slightest trouble with them would cause irreparable disablement. So perfectly do these

chambers operate that 25 shells may be fired consecutively without necessitating the resighting or readjustment of the cannon.

Just as the life of a 42 centimeter gun depends on the most exacting inspection and care of its recoil chambers, the life of the car you drive rests with the attention you give its springs.

Every day your car is driven without DANN Insert, just so much is being subtracted from its life of usefulness—for car springs positively cannot serve as highly efficient protective agents—nor cannot function properly—without DANN Insert.

Demand the proof. Send for handsomely illustrated booklet, "The Story of the Inter-Leaf Shock Absorber." Learn why cars wear out.

Demand DANN Insert in your new car—install DANN Insert in your old car.

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The history of American track and road racing, endurance run, hill climb and trans-continental tour is a chronicle of the Hartford Shock Absorber's supremacy. Absolutely indispensable for comfortable motoring over any road at any speed.



Anderson, in Hartford-Equipped Stutz, First



Rooney, in Hartford-Equipped Stutz, Second

The score of the great Sheepshead Bay event:

Car.	Driver.	Time.	M.P.H.
1. Hartford-equipped Stutz.....	Anderson	3:24:42	102.60
2. Hartford-equipped Stutz.....	Rooney	3:25:29	102.19
3. Hartford-equipped Duesenberg.	O'Donnell	3:39:55	95.45
4. Hartford-equipped Ogren.....	Alley	3:47:03	92.52
5. Hartford-equipped Duesenberg.	Henderson	3:47:26	92.31
6. Hartford-equipped Delage.....	Limberg	4:09:23	84.22



O'Donnell, in Hartford-Equipped Duesenberg, Third

First and second cars beat all previous marks for the 350 miles.

Do as 350,000 car owners and 95% of racing drivers have done—Hartford-equip.

Tell us make, year and model of car and we will tell you how to enjoy solid automobile comfort.

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4 x34	20.35
4½ x34	27.30
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5 x37	33.90

*Fisk Plain Tread prices are
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Make Permanent Friends By Selling Fisk Non-Skid Tires

The Fisk Non-Skid is famous for its mileage and its good looks. Thousands of new Fisk users are increasing the Fisk family every month. Car owners everywhere are adopting it. At the low prices the Fisk Non-Skid costs even less than many makes of plain treads.

Sell your customer his first Non-Skid and you have a steady customer and an enthusiastic supporter of everything which you sell. Our very wide-spread advertising campaign is creating the demand for you to supply.

All we have learned about tire building we are putting into the Fisk Non-Skid. It is the best tire we have ever built, and we are doing everything in our power to help you sell it.



Your part is to carry a comprehensive line of sizes in stock, so that you may reap the benefits of our work in your own continuous business and profits. Suggest to the car owner that he use Fisk Non-Skids all around.

Don't let this opportunity get by you.
Write Dept. 23 for our Dealer Proposition.

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With but a small part of the 1916 selling season past, Overland dealers already have had more cars than ever before in twice the length of time.

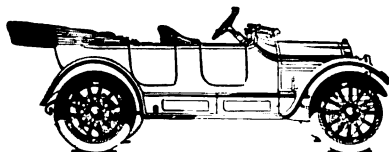
More than 50,000 Model 83 Overlands have been shipped since June.

Total shipments for the calendar year to date amount to 80,000 cars.

Our production has reached 630 cars per day.

"Made in U. S. A."

The Willys-Overland Company
Toledo, Ohio



Overland Model 83 Touring Car
Price \$750, f. o. b. Toledo

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MOTOR WORLD

Vol. XLV

New York, U. S. A., Wednesday, November 3, 1915

No. 5

Ohio Garagemen Organize to Work for Trade Betterment

Problems of Business Discussed and Their Remedies Outlined—Enthusiasm Marks State's First Assemblage

COLUMBUS, O., Nov. 1—Marking another step forward in the progress of the garage business toward that plane of higher efficiency which eventually must be reached, garagemen of the State of Ohio organized The Garage Owners' Association of Ohio, at the organization meeting held here October 26 and 27.

All told, some 85 garage owners and dealers attended the meeting, which went through with a swing and with enthusiasm which augurs well for its future. The organization follows the call issued to every garageman in the state by President Frank T. Price of the Columbus Garage Owners' Association, which has been in existence for nearly a year, during which time it has demonstrated its power for good.

In addition to welding themselves together into a powerful working unit, the garagemen also placed themselves on record as favoring the passage of the Stevens Bill, which would permit price maintenance; they also urged, through resolutions, that the National Automobile Chamber of Commerce take up again the question of setting a uniform time for the announcement by manufacturers of new car models.

The Columbus organization was assisted in the formation of the state association by E. J. McGuirk, organizer for the Associated Garages of America, who gave the benefit of his experience. Aiding him were J. C. Thorpe, president of the Champaign County Automobile Trade Association, of Urbana, Ill.; L. C. Steers, secretary of the Garage Owners' Association of Michigan, and Jud S. Jos-

lyn, of the Motor Car Dealers' Association of Rockford, Ill.

The meetings were held in the commodious assembly room of the Hartman Hotel. Promptly at 10 a. m., October 26, the meeting was called to order by Frank T. Price and Mayor Karb of Columbus

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Frank T. Price.....Columbus

FIRST VICE-PRESIDENT

E. T. Jones.....Akron

SECOND VICE-PRESIDENT

Harry Single.....Cincinnati

THIRD VICE-PRESIDENT

F. E. Bowers.....Portsmouth

SECRETARY-TREASURER

Arthur J. Peoples.....Columbus

DIRECTORS

William Colter (1 year)...Dayton

F. E. Avery (2 years)...Columbus

E. J. Lewis (3 years).....Bucyrus

delivered an address of welcome which consisted of a few well chosen words.

E. J. McGuirk was then elected temporary president and Robert McClure temporary chairman. One of the first duties of the temporary officers was the naming of the standing committees on constitution and by-laws, resolutions and nominations. The committees were:

Resolutions — W. E. Buckingham, Cardington, chairman; W. E. Coons, Mt.

Vernon, and Fred A. Kaiser, Columbus.

Constitution and By-laws — William Huber, Dayton, chairman; Henry Single, Cincinnati; George C. Bohn, Columbus, Andrew Auble, Jr., Akron; T. A. Sawyer, Columbus; F. P. Welling, Worthington, and William J. Miller, Columbus.

Nominations — E. T. Jones, Akron, chairman; Charles G. Cox, Columbus; Frank E. Avery, Columbus; K. Brodbeck, Lancaster, and H. S. Simpson, Newark.

J. C. Thorpe, president of the Champaign County Automobile Trade Association, of Urbana, Ill., spoke at length on "The Benefits of Organization." His talk was interesting and gave a number of pointers to the new organization. Incidentally, he lauded Motor World's Campaign for Greater Profits and urged the members to follow Motor World's suggestions for Better Business.

G. A. Waddle, representing the Good-year Tire & Rubber Co., who was to have given a "Description of an Ideal Garage," changed his topic at the request of the officers and spoke instead on "The Stevens Bill." He told of the purposes of the bill and urged all present to see or communicate with their congressmen and senators and urge the passage of the bill.

Robert Bland, president of the Associated Garages of America, who was to have spoken on the "Future of Automobile and Garage Business," was unable to attend because of illness.

One of the features of the first day's session was a banquet served at the Kaiserhof Cafe, which was attended by more than 150 delegates and their fami-

Some of the Delegates Who Attended the Convention in Columbus



1—F. A. Bean, Detroit Garage & Station Operators Assn., Detroit
 2—A. C. Rice, Michigan Garage & Taxi Co., Detroit
 3—Frank C. Roderus, Chicago
 4—W. C. Hurley, Ohio Rubber Co., Detroit.
 5—George C. Bohn, Reliance Truck & Garage Co., Columbus
 6—Roy O. Williams, Williams & Schlereth, Columbus
 7—E. T. Jones, Jones Auto Co., Akron
 8—J. C. Thorpe, chairman, Dealers Division, Garage Owners' Assn. of Ill., Urbana
 9—Miss A. Bower, Asst. Sec'y, Columbus
 10—Frank Gremel, Gremel & Miller, Detroit
 11—L. S. Currier, Currier Auto Co., Detroit
 12—Mrs. Frank Gremel, Detroit
 13—Mrs. L. S. Currier, Detroit

14—L. S. Bartholomew, B. F. Goodrich Co., Columbus
 15—L. C. Steers, secretary, Garage Owners' Assn. of Mich., Detroit
 16—H. M. Baker, B. F. Goodrich Co., Columbus
 17—Kate Gunnel, 518 Garage, Detroit
 18—Ora M. Blandon, Grosse Pointe Garage, Detroit
 19—Joseph H. Bernard, Eclipse Auto Co., Columbus
 20—H. J. Curran, Motor World
 21—T. A. Sawyer, Sawyer Auto Specialty Co., Columbus
 22—J. E. Jones, Jr., Hillane Garage & Machine Co., Columbus
 23—Robert McClure, McClure Tire & Rubber Co., Columbus

24—D. A. Calkins, Justus & Parker Co., Columbus
 25—Charles E. Justus, Justus & Parker Co., Columbus
 26—George W. Cronley, Bellefontaine
 27—G. A. Richards, Firestone Tire & Rubber Co., Columbus
 28—Ford Darling, Darling Motor Sales Co., Conneaut
 29—F. W. Watson, Pharis Tire & Rubber Co., Columbus
 30—B. B. Harris, Harris-Llewellyn Rubber Co., Columbus
 31—D. R. Larwill, Larwill Service Garage, Wooster
 32—T. A. Beard, Magneto Repair & Mfg. Co., Columbus
 33—George A. Waddle, Goodyear Tire & Rubber Co., Akron

lies. Following the banquet, a theater party was given at Keith's theater.

The sessions Wednesday, October 27, started at 9 a. m. because of the large amount of business to be transacted. The feature of the morning session was a talk by Jud S. Joslyn, a member of the Motor Car Dealers' Association of Rockford, Ill., on "Price Maintenance and Cost Systems." He urged all garage owners and accessory dealers to install cost systems at once. L. C. Steers, secretary of the Garage Owners' Associa-

tion of Michigan, explained at length "The Lien Law of Michigan and How to Get One in Ohio." His talk was followed by a general discussion.

The board of directors selected Arthur J. Peoples, formerly a tire salesman, as secretary-treasurer, and headquarters will be opened in the Chamber of Commerce Building, Columbus. It was decided that the next meeting of the association should be held in the month of October at the Hartman Hotel, Columbus.

means to perpetuate your organization. The most active men in your organization should be in this committee, as you will find that it is one of the most important in the organization. Do not fail to bring this matter before the convention.

"I would also suggest that you have a committee appointed on "Better Business," the same as has been outlined by Motor World. This committee's duty is very important and if carried along educational lines, it will better the condition of every garage owner throughout your state. It means death to the curbstone salesman, department stores, cut-price mail-order houses and so-called motor supply clubs.

"The accessory business, if properly handled, is one of the most lucrative parts of our business, and we certainly should encourage and educate our men along these lines.

"You should also have a committee appointed at this convention to wait upon manufacturers or their representatives, and endeavor to bring about a better feeling between the manufacturer and garage owner. This is a vital question and one that is well worthy of consideration. The garage owners of Ohio are suffering under the manufacturers' lash today, the same as his brother garage owners in various other states in the Union.

"The condition which is existing today

Bland Advises Committees as a Solution

Would Serve to Eliminate Troubles and Could Do Much to Improve Conditions Within the Trade

TAKING up the suggestions contained in a recent issue of Motor World, Robert Bland, president of the Associated Garages of America, urged upon the newly formed organization the necessity for the appointment of committees which will take up subjects allied with Better Business. If the organization will do this, he said, it will mean death to cut-price mail-order houses, curbstone dealers, department stores and the various leagues which pose as supply dealers. Bland was unable to be present and his message was conveyed in the form of a letter, part of which follows:

"Conditions which surround us as garage owners today, make it absolutely important for us to fight our battles along cooperative lines. The garage owner who cannot see that he is making a mistake by trying to do business as an individual is certainly to be pitied, and it is up to the members of your organization to see that every garage owner in the state is enrolled as a member of the "Garage Owners' Association of Ohio."

"Experience in organization work has taught us that it is a very wise policy to have a committee appointed whose duty it will be to provide ways and

Oct. 26 and 27 and Formed the Garage Owners' Association of Ohio



34—H. C. Bickle, Bickle Garage, Painesville
 35—E. J. McGuirk, secretary, Garage Owners' Assn. of Ill., Chicago
 36—J. W. Lehman, Motor World
 37—Paul E. O'Brien, Spring St. Garage Co., Columbus
 38—W. V. Burnett, Motor Sales & Supply Co., Youngstown
 39—J. Carrol Johnston, American Asbestos Co., Columbus
 40—W. J. Friel, Friel's Garage, Portsmouth, Ohio
 41—G. W. Betsel, Hendrysburg Auto Garage, Hendrysburg, O.
 42—William C. Huber, Fireproof Garage, Dayton
 43—Fred A. Kaiser, Kaiser Motor Car Co., Columbus

44—Albert Bernhard, Bernhard Garage, Columbus
 45—J. J. Schlereth, Williams & Schlereth, Columbus
 46—Joseph W. Elgensee, Elgensee & Douglas Garage, Columbus
 47—W. E. Buckingham, Buckingham Auto Co., Cardington, O.
 48—C. W. Koons, Mt. Vernon Auto Garage, Mt. Vernon
 49—C. G. Cox, Fourth-Chestnut Auto Repair Co., Columbus
 50—F. T. Price, Hilane Garage & Machine Co., Columbus
 51—F. E. Avery, F. E. Avery & Son, Columbus
 52—Andrew Auble, Jr., Akron Auto Garage Co., Columbus
 53—William J. Miller, Broad Oak Automobile Co., Columbus

54—Harry Single, Auto Repairing & Mfg. Co., Cincinnati
 55—K. Brodbeck, Brodbeck Bros. Garage, Lancaster, O.
 56—F. P. Welling, Washington Garage, Washington, O.
 57—Frank Brosues, Brosues Garage, Thornville
 58—Fred W. Simpson, Fred Simpson Auto Co., Newark
 59—Thomas Ash., Columbus Auto Brass Co., Columbus
 60—C. S. Williams, Hilane Garage & Machine Co., Columbus
 61—O. J. Muntzmyre, Midway Garage, Convo
 62—W. S. Sherwood, Franklin Rubber Co., Columbus
 63—E. J. Lewis, Lewis Garage, Bucyrus

between the manufacturer and garage owner is a deplorable one, and as soon as we devise ways and means to bring

about a better feeling between these two great branches of the industry, the better it will be for all concerned."

"You Must Cooperate," Asserts J. C. Thorpe

And "Garagemen Have Not Lived Up to Their Responsibility as Citizens of the Business World"

"THERE is just one reason for the present unsatisfactory conditions in our part of the automobile business, as well as in that of the automobile dealers," said President J. C. Thorpe, of the Champaign County Trade Association, in speaking on "The Benefits of Organization," "and that is that the men interested in the garage business have not lived up to their responsibility as citizens of the business world." And as to the solution of the problem, he stated that there is just one answer, and that is cooperation between competitors.

There are registered now in the United States something over two million motor-drawn vehicles, said Thorpe. Very roughly speaking, we assume that there are five people who are served by each one of these vehicles; one-tenth of the population of the United States is directly interested in the automobile. Doesn't it appear that the economic administration of the affairs of such a business as this needs the most careful business methods in vogue in other lines of

business? It seems to me there is no room for reasonable doubt in that respect.

I wonder if we can have a proper pride in our own part of this business, however large or small it may be, if we have to tolerate conditions which justify at least in a measure the term "the automobile game." Have you ever searched your own mind for evidence of your guilt when you hear some man say, as we often do hear, that the garageman is a thief and a robber and the automobile dealers a bunch of crooks.

There is just one reason for the present unsatisfactory conditions in our part of the automobile business, and that is that the men interested in the garage business, as well as the automobile dealers, have not lived up to their responsibility as citizens in the business world.

We have not given enough of our time, of our brains and of our energies to promoting a state of good health in this business. We have all been too selfish to see that the efforts we may put forth from time to time to benefit the other fellow will eventually benefit us. There has been an entire absence of the spirit of cooperation among competitors that characterizes every other successful business in this country. I doubt whether there is any business you or I could mention

that is marked by such economic loss and waste as is the part that the garageman and the automobile dealer has in the automobile business.

It is up to us to provide a solution for the problems presented. It is going to be fair to the public, to our customers, to our competitors and to ourselves. There is just one answer and that is the cooperation among competitors. It is true in every other line of business. It must be true in our line of business.

We have got to come to realize that by the organization or the boosting of certain conventions that are of men engaged in the business, we can accomplish more and place our business on a higher and more dignified plane than by any other means whatever. Such a convention or organization prevents a duplication of a lot of things that you and I are doing every day in the regular course of our business and it is not anything new. You know I like to think about this particular thing—the dignity of our business.

Every single man of you, as well as myself, engaged in the retail end of the automobile business and the public garage business, has an opportunity for public service that doesn't come to every merchant, and, you know, as I look back over my experience in the automobile business, I even feel a little bit ashamed of myself that I will sit around and listen to complaints that are entirely unjust and listen to criticism of the garage business in general which you and I know aren't true, and sort of apologize for our business itself.

It is all dead wrong, and I will tell you, the more we can stiffen up our back-bone, the more we can see our opportunities for public service and the more we appreciate the importance of organization in our business, the sooner you and I will come to the

point where we have a pleasant and profitable business.

If you have discussed with your neighboring competitor the advisability of organizing a trade association, what has been the first plank you are going to nail down in the platform of that organization? Price maintenance.

Two or three fellows get together that live in the same town and some competitor has lowered his storage rates to \$2.50 a month, or some neighboring dealer has taken a 1909 Chalmers automobile in trade and allowed \$700 for it, whereas you would only allow him \$250 or \$300.

You two or three fellows get together and form a trade association and make every fellow put up a bond or do something to guarantee he is going to maintain prices, and in the beginning of your discussion of trade association work, you forget all the other things that are really of greater importance, because that price proposition will solve itself as sure as can be. But isn't it true that that particular thing, the question of price maintenance, has inspired more discussion in automobile trade associations than any other one thing.

That, too, is all wrong, because of two factors. In the first place, a legitimate profit is necessary for permanence in any business. We won't disagree about that, will we? Therefore, the man who makes a practice of cutting prices is just following out a steady course that will result in his elimination from the business he is engaged in, so we don't have to worry about that.

The other important factor is, there isn't one single fellow who has red blood and got any real stuff in him, but what resents the attempt of any business man or bunch of business men, to dictate to him what he shall do with respect to selling the stuff he buys and has for sale.

I maintain that problem will solve itself and it ought to be put in the background as far as trade associations are concerned, and if the proper course of education is pursued, upon a good sound policy, the time is going to come and make money fast for the man who has kept his prices so he can make a living for himself.

Price Maintainers Make Money

The men that keep their prices up are making money and are a credit to the business in the greater interest of good business.

When we form trade associations we get all the fellows in and put them in upon a maintenance of price basis, and the first fellow that breaks that agreement we will retain his money and kick him out of the association.

Every man in your community who is legitimately engaged in the automobile business, whether giving away stuff or selling it at a proper price, ought to be a member of the trade association, and by that statement, I can see from the expression on your faces, I am laying myself open to a lot of criticism, but you will agree with me, if you look the thing squarely in the face and see what the results are going to be.

The solution of nearly all the problems that are presented in our business depend upon a carefully thought out educational policy. You have got to show the man what the advantages of organization are; you have got to show him what the evils of price cutting are; not, if you don't do certain things we are going to kick you out or boycott your business—which is going to result in your home town having all of those men, or supposed men, in the automobile business.

Now, in promoting the trade association work, there are a lot of problems that are presented that you have all thought about. The question of price maintenance needs no further discussion. There is the curbstone dealer, the sort of an agent of the factory

that comes into a locality or town and comes in and sells a car in a ward or voting precinct and goes to the next ward and next precinct and makes another agent.

There is the insurance man and real estate man who doesn't have the price of a car and wants to buy an automobile at dealer's rates, and represents himself as a candidate for an agency and buys a car at dealer's prices. There is the banker that goes to the

factory and represents himself to be the most influential man in his community, and if they will sell him a car at the dealer's discount he knows where he can sell half a dozen more.

All those things you and I face every day. The solution of every single problem lies in this one great big word, "organization," and paradoxical as it may seem, cooperation among competitors.

"Must Know Costs or Fail," Joslyn

Rockford Man Explains Operation of Accounting System in Illinois Garages—Points Out Pitfalls

JUD S. JOSLYN, a member of the Motor Car Dealers' Association of Rockford, Ill., and an expert on accounting systems for garages, in an address on "Price Maintenance and Cost Systems," explained his system of calculating costs. His talk was illustrated by a system of charts and bookkeeping forms, described some time ago in Motor World, showing the methods of obtaining costs in every department of his garage. He urged every garageman to adopt a system in order to elevate his business to the plane where it rightfully belongs. An abstract of the address follows:

Last week I had the pleasure of accepting an invitation from my bookkeeper to attend a dinner given by the Rockford Accountants' Association, at which Wm. A. Chase, of Chicago, gave an address on accounting. I was surprised to find 100 very bright men, among them accountants, bookkeepers, bankers, lawyers, manufacturers and business men.

If you do not have such an association here, and I expect you have, I would advise forming one and seeing that your accountant is a member.

I have come to dislike the word bookkeeper, as it does not mean to me what I want.

Accountants Are Needful

The fact that accountants are needed is vouched for by the fact that Mr. Wharton, of Chicago, gave \$100,000 to found the Wharton school of accounting and that at least one large Chicago bank and several New York banks are in favor of not loaning money to manufacturers or merchants until they submit a business statement signed by a certified public accountant, which is a guarantee of accuracy. I believe when all banks do that it will be better for all of us. If you are right you can run on; if wrong, the sooner you stop the better off you are.

Cost-bookkeeping or cost accounting is no more difficult than any other bookkeeping or accounting and differs only in so much as in the older method all amounts were put down in one column and in the newer method we have as

many columns as we have "splits" in the business, or in other words, departments.

It happens in nearly every line of business that some departments or lines do not pay a profit, while the business as a whole does pay, as we will show later. By operating under a cost system you can determine each month what departments pay or lose, and how much, and you are apt to dig into the why for of the loss.

If you have before you each month a list of all the money spent and what it is spent for, you are likely to see where some items can be cut down. This leads to efficiency and therein is where you can keep your customer and by so doing help yourself.

Efficiency the Big Thing

Efficiency today is the foremost thing in the big manufacturing plants and merchandising establishments, and must soon be thought of by us. If any one of us can make as good a repair in one-half the time of somebody else, he can sell his work for less money and still show more net profit, which he is entitled to on account of his efficiency or improved methods.

This matter is not being thought of, and I know one shop that on a certain make of car can save and can more than cut the average repairshop's cost in half.

Recently an R. G. Dunn & Co. manager said to me that the average garageman's credit rating gave him more trouble than any other line, and was the poorest of any line in business. There is, however, held out to us a ray of hope, as he also said that some of them are now improving.

Ours is a very young business and one that has grown to very large proportions in a few years, which has naturally made it hard for those interested in it to keep up with its rapid growth. The business of manufacturing and selling automobiles and accessories now takes its place in the foremost ranks and is still growing. It has long ago passed the luxury stage and become a necessity. It is, or can be made to be, a profitable business, and I believe it behooves us to study and work to uplift the standing of every man interested in it and to operate our own

part of it so as to show a profit to ourselves and allow our competitor to also make a profit for himself. I do not believe this possible without the aid of a cost system of some kind.

Up to a very short time ago it was not easy to find any cost system adapted to our line, as it has so many different sides or angles to it, but now there are several that can be used to advantage, and I am informed that Motor World is about to bring out in a short time a very complete one. Several in Illinois are successfully using the Hollister system.

All cost systems are based on the same principle and if they are what they claim to be will arrive at the same results.

The main idea is to split up the business into small units rather than account for it as a whole. First, let us get the rent item in the shop. Suppose the man owns his own land and building; the land value at \$12,000 and the building at \$12,500. We will charge as rent 6 per cent interest on the land and 9 per cent on the building, because it is growing old all the time and of less value. We have now found a total cost of rent for this man of \$1,845 per year or \$153.75 per month.

We now find the number of square feet in the whole building and divide the amount of rent by it to find the cost per foot and in order to know the rent charge for each department, office included, we multiply the square foot space in each by the cost per foot, including in each department its fair share of all halls, stairways, elevators, shafts and the main driveway, as they all cost money and therefore are an overhead that must be charged up somewhere.

If one rents a building, of course there will be no interest or depreciation to be cared for under this head. This work has only to be done once unless the values change or the landlord raises the rent.

The rent must be distributed to the different departments and also the other expenses or overheads.

THE DELEGATES PRESENT

E. J. McGuirk, Associated Garages of America, Chicago; Jos. G. Bernhard, Eclipse Automobile Co., Columbus; E. Jones, Jones Auto Co., Akron; J. Haunstien, Kent Motor Car Co., Kent, O.; Geo. C. Bohn, Reliance H. G. Co., Columbus; Harry Single, Single Auto & Garage Co., Cincinnati; J. C. Thorpe, Urbana, Ill.; F. E. Avery, Columbus; Paul E. O'Brien, Spring St. Garage, Columbus; Chas. E. Justus, Columbus; C. S. Williams, Hilane Garage Mch. Co., Columbus; Albert B. Bernhard, Columbus.

T. A. Beard, Magneto Repair & Mfg. Co., Columbus; Frank Rovens, Chicago; Robt. T. McClure, McClure Tire & R. Co., Columbus; Geo. Waddle, Goodyear Tire & Rubber Co., Akron; F. A. Sawyer, Sawyer Auto Spec. Co., Columbus; Fred A. Kaiser, Kaiser Motor Car Co., Columbus; Karl Brodbeck, Brodbeck Bros., Lancaster, O.

C. G. Cox, Fourth-Chestnut Auto R. Co., Columbus; W. S. Sherwood, Franklin Rubber Co., Columbus; A. N. Arthur, Ohio Auto

Brass Co., Columbus; C. W. Koons, Mt. Vernon Auto Garage, Mt. Vernon, O.; F. W. Simpson, Newark, O.; O. H. Larwill, Larwill Service Garage, Wooster, O.; R. W. Llewellyn, Harris Llewellyn Rubber Co., Columbus; W. J. Miller, The Broad Oak Auto Co., Columbus; Grover Simpson, East End Vulc. Co., Columbus.

J. C. Johnston, Columbus; W. E. Buckingham, Buckingham Auto Co., Cardington, O.; Frank L. Vincent, Vincent & Franz, Columbus; J. J. Schlereth, Williams & Schlereth, Columbus; Wm. C. Huber, The Fire Proof Garage, Dayton; T. P. Welling, The Worthington Garage Co., Worthington, O.; L. T. Shaner, Circleville, O.; F. M. Watson, Pharis Tire & Rubber Co., Columbus; D. A. Calkins, Justus & Parker Co., Columbus; R. O. Williams, Williams & Schlereth, Columbus; Elgensee & Douglass, Columbus.

A. E. Harvey, Marysville Motor Car Co., Marysville, O.; F. T. Price, Hilane G. M. Co., Columbus; Geo. W. Cronley, Bellefontaine, O.; F. E. Bower, Portsmouth, O.; A. Auble, Jr., Akron; Geo. W. Wing, Worthington, O.; F. O. Darling, Conneaut, O.; H. C. Bickle, Chardon, O.; Thomas Ash, Columbus.

H. J. Curran, Motor World, Chicago; E. J. Lewis, Bucyrus; J. W. Lehman, Motor

World, Columbus; Chas. W. Finch, Oil City, Pa.; H. I. Huffman, Marysville, O.; O. J. Muntzmyre, Midway Garage, Convoy, O.; W. E. Bethel, Hendrysburg, O.; W. V. Burnett, The Motor Sales & S. Co., Youngstown; Frank Brosens, Thornville, O.

B. B. Mums, Columbus; H. M. Baker, Columbus; L. S. Bartholomew, Cleveland; W. J. Friel, Portsmouth; L. C. Steers, "518" Garage, Detroit.

W. E. Hurley, Ohio Rubber Co., Detroit; A. C. Rice, Michigan Garage & Taxi Co., Detroit; K. Gunnell, Detroit; L. S. Currier, Detroit; O. M. Blandon, Grosse Point Garage, Detroit; Joe J. Fauver, Canfield Garage Co.; Geo. B. Rummell, Rummell Garage Co., Findlay, O.; Earl D. Rummell, Rummell Garage Co., Findlay, O.; A. J. Reeble, Columbus, O.

J. S. Joslyn, Rockford, Ill.; H. D. Young, Caledonia, O.; A. G. Saurer, Barberton, O.; C. L. Thayer, Columbus; J. O. McCracker, Columbus; H. L. Nedemeyer, Henry L. Nedemeyer Auto Co., Columbus; L. H. Noltemeyer, Columbus; Wm. J. Merz, Spring St. Garage, Columbus; Geo. F. Eckel, Columbus; F. P. Arnold, Arnold & Urian, Cambridge, O.; J. L. Steele, Columbus; Geo. O. Stoltz, Marion, O.

The New Association's Rules of Procedure

CONSTITUTION AND BY-LAWS CONSTITUTION

ARTICLE 1—NAME:

The name of this association shall be The Garage Owners' Association of Ohio.

ARTICLE 2—OBJECT:

The objects of this association shall be: To establish friendly relations and promote the general welfare of its members.

To cooperate in the enactment or repeal of laws and ordinances relative to the sale, garaging and repair of motor vehicles.

To eliminate abuses which this business is subject to and to maintain a high standard of efficiency.

ARTICLE 3—INCORPORATION:

This association shall be incorporated under the laws of the State of Ohio, as a corporation (not for pecuniary profit).

ARTICLE 4—POWER:

This association shall have the power to issue charters to local associations and to accept individuals as members, and to do any and all things which may be necessary or proper in connection with its business and purposes which may not be contrary to law. It shall have the power to make by-laws for its government and to amend and alter the same, and such by-laws shall provide for the collection of the necessary revenues.

ARTICLE 5—OFFICERS:

Section 1. The officers of this association shall consist of a president, three vice-presidents, each of whom shall be a director, and three directors at large, and a secretary-treasurer. At the election first following the adoption of this constitution there shall be elected a president, one vice-president and one director at large for the term of one year. One vice-president and one director at large for the term of two years, and one vice-president and one director at large for the term of three years, after which there shall be elected annually at the October convention, one vice-president and one director at large for the term of three years. In addition thereto, there shall be elected annually the president and secretary-treasurer. The election as president shall include the election as director, and the secretary-treasurer shall be elected by the members of the board of directors.

Section 2. The general management and control of affairs, funds and assets of this association shall be vested in such board of directors.

ARTICLE 6—MEMBERSHIP:

The membership of this association shall consist of, individuals, auxiliary, associate and honorary members.

Section 2. Individual membership shall consist of such automobile dealers and garage owners that shall apply for and be accepted by the board of directors.

Section 3. Auxiliary membership shall consist of such local organizations of automobile dealers and garage owners that shall apply for and be accepted by the board of directors.

Section 4. Associate members shall consist of such allied organizations or individuals that shall apply for and be accepted by the board of directors.

Section 5. Honorary members shall be those persons who have rendered distinguished service in connection with this association or the purposes and objects for which it is formed.

ARTICLE 7—FEES AND DUES:

Section 1. Individual members shall pay on entrance fee to the State Association of \$10.

Section 2. Auxiliary associations shall pay a charter fee to the State Association of \$25.

Section 3. Individual members shall pay annual dues to the State Association of \$10.

Section 4. Auxiliary associations shall pay annual dues to the State Association of \$5 per capita.

Section 5. Associate members.

Associate members shall pay an entrance fee to the State Association of \$25, and annual dues of \$10.

ARTICLE 8—AMENDMENTS:

This constitution may be amended only by a two-thirds vote of all the members present at a regular or special meeting of the association.

BY-LAWS

ARTICLE 1—MEETINGS:

Section 1. The regular annual meeting shall be held in the month of October, at any place which may have been selected at the previous annual meeting.

Section 2. Special meetings shall be called by the president upon the written request of the board of directors or by the written request of twenty members. The object of these meetings to be specified in the call.

ARTICLE 2—ORDER OF BUSINESS:

Section 1. After the meeting has been called to order by the presiding officer, the following order of business shall be observed:

- Roll call or registration of members.
- Approval of the minutes of the previous meeting.
- Communications.
- Report of officers.
- Reports of committees and action thereon.
- Miscellaneous business.
- Election of officers.
- Suggestions of members.
- Adjournment.

ARTICLE 3—NOMINATIONS:

Section 1. Nominations for officers and directors shall be made by a nominating committee appointed by the president on the first day of the annual convention, which committee shall report to the president on the same day, which report shall be read in open session, and be followed by the election. Other nominations for any office or offices may be made upon petition signed by ten members in good standing, and presented to the president and by him read in open session at any time prior to the balloting.

Section 2. Not more than two directors shall be elected from any county. All elections shall be conducted by regular ballot and the persons receiving the plurality of all the votes cast for a given office shall be declared elected to such office.

Section 3. If vacancy occur in any office, such vacancy shall be filled by a majority vote at the next regular meeting of the

association, or to be appointed by the president from the same district in which the vacancy occurred.

ARTICLE 4—DUTIES OF OFFICERS:

Section 1. It shall be the duty of the president to preside at all meetings; to appoint all committees, both standing and special; and perform such other duties as appertain to his office, or as the association or board of directors may direct. He shall, with the secretary-treasurer, sign all contracts, but no contract shall be signed without specific authority of the board of directors of the association.

Section 2. The vice-president. In the absence of the president all the powers and duties of that office shall devolve on the vice-presidents in the order of their seniority.

Section 3. Secretary-treasurer. It shall be the duty of the secretary-treasurer to keep a record of all meetings of the association, conduct the correspondence, maintain a correct roll of the members and perform such other duties as may be required by the association or board of directors; to receive all moneys belonging to the association, and to deposit same in a bank to be named by the board of directors under the name of The Garage Owners' Association of Ohio, and to pay out such moneys only upon bills approved and certified to be correct by the president. The secretary-treasurer shall furnish bond in such sum and upon such conditions as may from time to time be agreed upon by the board of directors, the expense of which shall be paid by the association.

Section 4. It shall be the duty of the board of directors to take charge of the affairs of the association not otherwise provided for; to make at least one examination yearly of the books of the association; to make such recommendation from time to time as they may deem proper and benefi-

cial to the association; and to perform such other duties as herein assigned to them. They shall have the power when in their judgment, it is advisable to submit a proposition to the association and receive a mail vote on same, and such vote shall be binding upon the association in the same manner as if taken in a regular meeting. When such mail ballot is taken the polls shall be closed ten days after the date of notice sent out by the secretary-treasurer.

Section 5. Failure of any member of the board of directors to attend three consecutive meetings of such board, without good and sufficient cause, and without notice to the board, shall cause his membership on said board to lapse and his successor be elected as heretofore provided.

Section 6. A decision of the board of directors shall be final upon all questions of construction or interpretation of these by-laws.

ARTICLE 5—ARREARS:

No member in arrears on the books of the association for 60 days shall have any vote or other privilege of membership until the account is settled, and may be dropped from the roll by a majority vote of the board of directors.

ARTICLE 6—PROCEDURE:

Roberts' Rules of Order shall be accepted as authority covering all points of order not included in these by-laws.

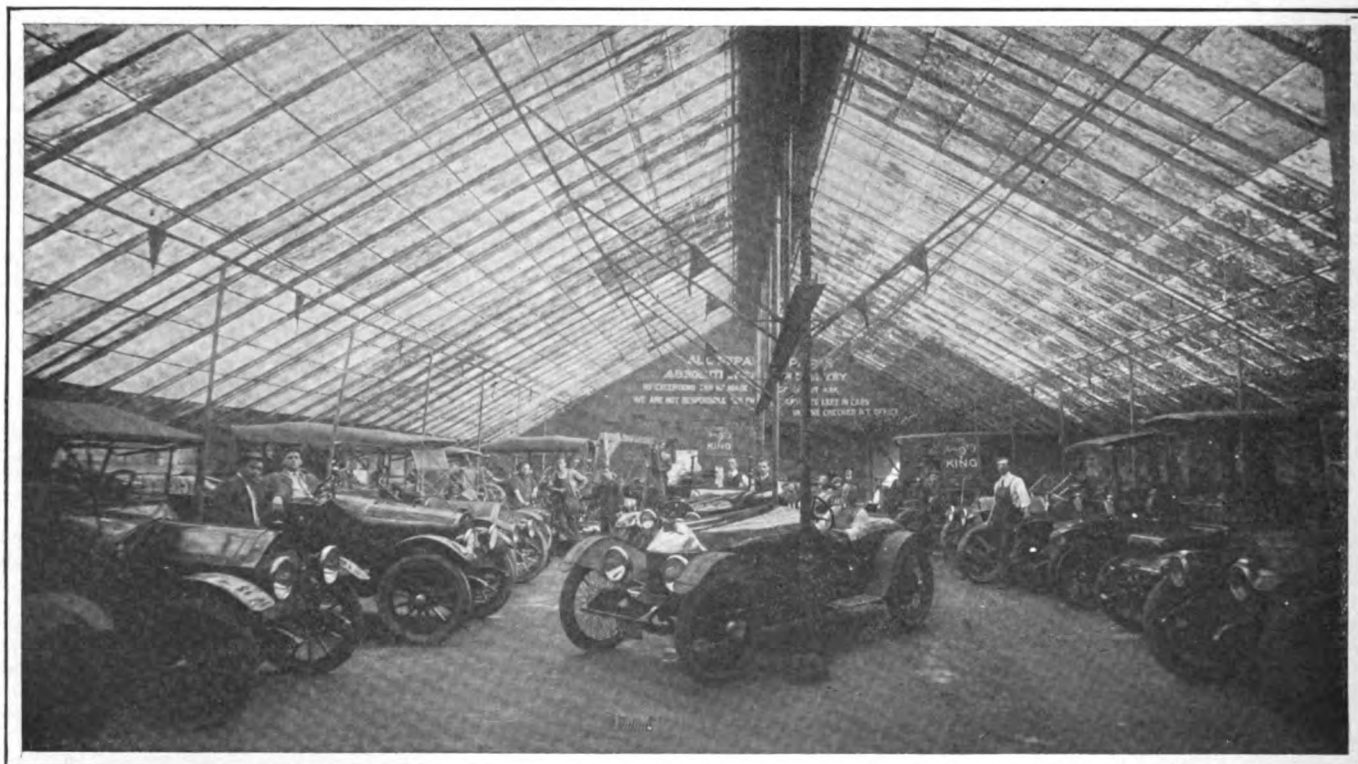
ARTICLE 7—QUORUM:

Four members shall constitute a quorum of the board of directors and twenty-five members shall constitute a quorum of the association.

ARTICLE 8—AMENDMENT:

These by-laws may be amended only by two-thirds vote of all the members present at a regular or special meeting of the association.

Glass Service Station Gives Maximum Light—Drop Lights Never Needed



Glass-covered service department which affords maximum light. Work can be done until sundown without artificial light and drop lights are not required for working underneath cars. Regular greenhouse glass painted with a light coat of brown is used, keeping out the glare of the sun but not the light. It is stated that it is no warmer than a frame building with a tin roof and the cost is scarcely any greater.—Wm. P. Barnhart & Co., Washington, D. C.

The Dealer, the Cut Price and the Why

Thousands of Dollars Are Given Away Each Year by Men Who Retail Cars. Why? And Does It Pay?

By Ray W. Sherman

MINNEAPOLIS, November 1—The dealer and the cut price. Why associate the two? The latter is in the business for what money he can make, and he will not admit that price-cutting on cars is a money-making procedure. Then why associate the two?

The answer is that in all this great Northwest the two travel hand in hand—with a few exceptions. And lest the Northwest feel that it is being singled out and a stigma cast upon it, it may be stated here that the practice prevails in thousands of cities and towns over other sections.

The cut price is one of the evils of the trade. It is a parasite which preys upon the industry. It leeches the life blood from the veins of the retail trade, and many a business which has withered and died in early youth has expired solely because of this anemia.

Northwest Is a Land of Plenty

Today the Northwest is a land of plenty. The ground has yielded bountifully to the tiller. Each night the prairies are marked with countless straw fires, each one of which seems a votive offering by the farmer to the God of Harvest. The prospective buyers of cars have money. It is money for the car dealer.

But a great big pile of this grain-harvest money will never see the till of the car dealer. And why?

Because of the cut price.

It is not a disease of which the sufferer is ignorant. He knows all about it. He knows he is afflicted. He knows that every time he throws off \$50 on the price of a car he is taking that much money out of his pocket and throwing it away. He is giving it to the buyer—who does not need it—and the dealer is the only one to suffer; the dealer and the hundreds of other dealers, for each one says: "I have to cut. They all cut."

Why Does the Dealer Cut?

They do not all cut—but most of them do. This statement is not based upon guess or estimate. It is based upon the statements of the dealers themselves, statements made in the confidence that their names would not be used. And the majority of them admit that they cut.

The question asked over and over again by those interested in but not in

THIS is the sixth of a series of articles by Ray W. Sherman, who is traveling through the Northwest to get close to the problems of the dealer, the garageman and repairshop operator. The seventh article of the series will appear in an early issue.—The Editor.

the car selling business is: "Why does the dealer cut?" The answer is that he believes he cannot get business unless he does cut. And he believes that by cutting and making more sales he is making more money. He furthermore believes—and asserts he knows—that his competitors cut and that unless he does likewise they will get his business.

In part of his belief he may be right—they do cut. But in his belief that by cutting he is helping himself he is wrong. Buying a million safety razors for a quarter each and selling them at 26 cents might develop a whale of a sale—but if it cost a cent to sell a razor the principal reward of the seller would be the fun he got out of it.

Assume that the Jones Motor Co. has the agency for a car which retails at \$1,500. The distributor, who takes care of the factory's business in the territory, buys them at a discount of, say, 25 per cent. That means that the distributor gets the cars for \$1,125. His sliding scale makes his discount bigger, but let's omit the sliding scale for the sake of illustration.

The dealer out in the small town is sold the cars by the distributor at a discount of, say, 15 per cent. That lets the dealer have them for \$1,275. The dealer's profit—at the list—is \$225 and the distributor's is \$150 a car. The freight, let us assume, is \$60 a car, and the cars are listed f. o. b. factory.

Prospect Often the Better Salesman

Now, the prospect comes in to buy a car. He is a good shopper and very often a better salesman than is the dealer. He tells about what he can get off on such-and-such a car—and sometimes he lies like a trooper when he says it. But he says it; that is part of his story—always. And the odd part of it is that the dealer believes it.

Jones says the car sells for \$1,500, plus \$60 freight. Smith, the prospect, looks Jones in the eye with a look that says, "Quit your kidding. You've been selling cars at less, and I know it."

They haggle. Smith says he can get so much off on a competing car, so Jones comes down a peg. Generally he starts in by throwing off all or part of the freight. This is \$60 out of the Jones till, for some one must pay that freight.

They dicker some more. Maybe Jones throws in a tire, which cost him, say, \$12. If Smith keeps at it long enough—while he has Jones on the run—he may get a tube also. Assume that the tube cost \$3. Jones has now knocked off \$75. His profit of \$225—which he should get—has been reduced to \$150.

Profits That Are Visionary

Jones figures that by cutting the price he makes more sales, and that by making more sales he catches up on his losses. Suppose he could sell twenty cars a year at list price. That would mean a profit—aside from expenses—of \$4,500. The question now is: Does Jones stop to figure that when his profit is cut to \$150 a car he must sell thirty cars in order to make \$4,500. If he doesn't figure he should, for that is the situation.

The other question is: Will price cutting of this kind boost business 50 per cent? Fifty per cent is a big percentage, and it is doubtful if Jones would admit that any form of inducement could boost business 50 per cent. The big trouble is that Jones doesn't stop to figure. He doesn't realize the true situation.

Unless he sells ten more than the 20 cars he could sell at list he loses money.

There is one dealer who, when pressed on the matter, stated that the lowest profit he would take on a sale would be \$100. He would try to get the list plus freight and without any tubes, shoes or chains thrown in. If he couldn't get the list—or thought he couldn't—he would throw off as little as possible, but would not go below a profit of \$100.

Suppose Cutting Were Stopped

On the other side is the question: "What would happen if the dealer did not cut? Where would he come out?"

The answer is found in a not small number of dealers who will not cut one penny from freight or price. They get all they are entitled to. Generally these men are the best in town, and it undoubtedly is because of the principle upon which they stand that they are the best.

In one town in Minnesota the best place in town is operated by a man who will not cut prices. His place is clean and businesslike. He is neat in appearance and pays close heed to his business affairs. He used to cut, and admits it.

But now, he says, he has lived down that reputation.

He handles two popular lines of cars and does a good business. Until 1913 he cut prices. He believed as many others still believe that to do business he must make concessions to the buyer. At the beginning of the 1913 season he looked at his past record and found that in four or five years he had made but a comparatively few hundred dollars a year. He had done a good business—but at a cut price.

"Sink or Swim, I Won't Cut"

When the 1913 cars came along he said: "Sink or swim, I will not shade a price." He lived up to his resolve. It was a good year anyway in his town and he did the biggest year's business he had ever done. He had some trouble making buyers believe him when he said he would not cut a price, and some of them walked out on him. Today he has no trouble getting his story across—and his cars sell. It seems to bear out the theory that until all cars are very much alike and sell at the same price it is foolish to cut prices in an attempt to beat a competitor.

Suppose the A-car is a popular line and sells at \$1,500 and that the B-car is equally popular but sells at \$1,350. The A-car dealer is foolish to try to meet the B-car price. If he were assured that the B-car dealer would not cut he might find a cut of \$150 effective

—but not profitable—in closing the sale. He does not stop to consider that the B-car dealer, if he chooses, can cut below what the A-car dealer has to pay for the car, for with the same percentage of discount on both cars the list on the B-car is somewhere near the dealer's price on the A-car. After the A-car dealer has cut all he can and has given away all his profit the B-car man can then begin to cut and the A-car man can't follow him.

Also, once the A-car man has made this foolish concession he has destroyed his standing as a list-price man. He probably will lose the sale and will lose his profit on succeeding sales because of the unsuccessful offer he made—for news travels fast in this country.

Business Not Only Making Sales

There seems to be a mighty and unbeatable fallacy in the car retailing trade that business consists in making sales, lots of sales. It is like the branch manager who turns in a fine sales sheet to his factory but neglects to inventory his warehouse full of used cars at their salable value. It looks fine on paper. More than one factory has accumulated such paper in past years. When it found it had to mark down the cars—and its profits—it also marked the branch manager down—and out.

The dealer who sticks to the list price gets it, and gets it without much trouble. He may have a hard job convincing

some prospects that there is such an animal as a list-price man, but it can be done, and it is being done by a larger number of dealers each year. The price evil, many believe, has swung to its lowest ebb.

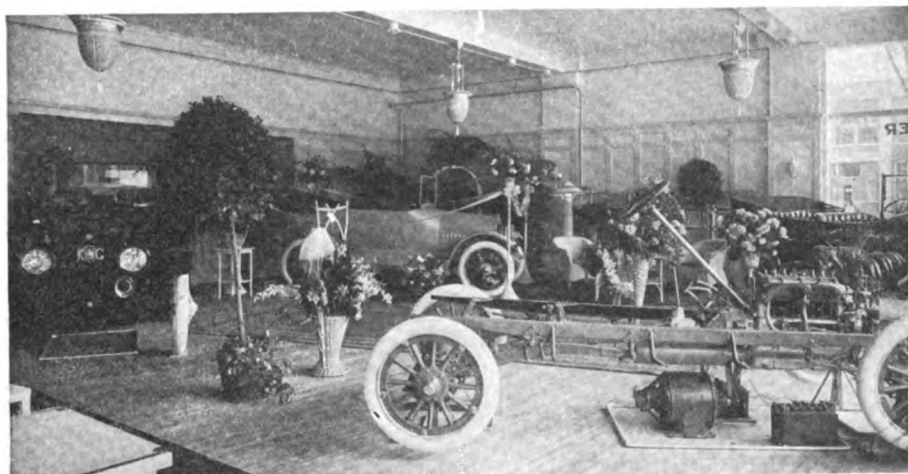
There is no question but that there is a strong-headed movement in the dealer and garage trade for Better Business, and the minute a dealer or garageman gets the germ he "gets wise to himself" and quits being a philanthropist to his customers. It is poor policy for one dealer to try to support 100 customers. The task should be reversed. And the movement right now is upward rather than downward.

True merchandising consists in making the buyer want your goods so badly that he will part with your price for them. If he can't be made to part with the price he hasn't been "sold" on the proposition. If he is "sold" he will buy your goods and no other—and will pay the price.

The advertising of manufacturers creates a demand, which advertising is supplemented by the sales effort of the dealer. If the car is good and is worth the money asked for it and if the dealer persists in his sales work and stands pat there is no question but that he can get the list and the freight and the goodwill of the buyer. Furthermore, after he has made the sale he can afford to give a little service without going broke.

Price maintenance pays.

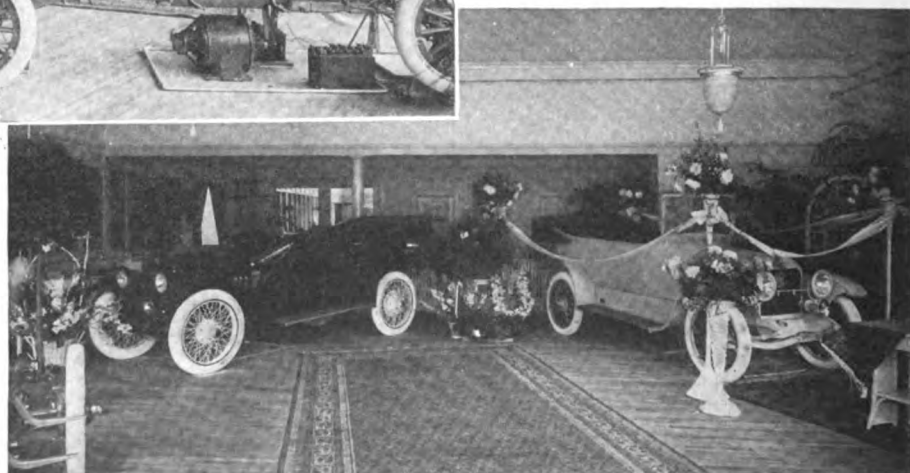
A New Company That Introduced Itself Through Tastefully-Decorated Salesroom



Last week the A. A. Crumley Co., Detroit, which was recently organized as Michigan state distributor for the King and Dort, inaugurated its headquarters at 998 Woodward avenue. To stimulate interest in the event the members of the company decided to decorate the showroom in an artistic way, and although there were palms, flowers, trellis decorations, birds in wicker cages, several pedestal urns, there was just enough of everything to make the general effect pleasant. It was one of the neatest and best arranged show windows in the city. The display attracted a large number

of visitors and according to Crumley, orders for more than sixty cars were taken during the week. This includes both new and used cars.

While it was not stated what the decorations cost, officials said that they were quite small and almost insignificant when the number of orders taken during the week are considered. In fact, they believe that much of the week's business was due to the special care for a neat, attractive showroom display, and Crumley is arranging for the installation of a permanent electric fountain and permanent decorations.



Buyer a Better Salesman Than the Seller

The Motor Car Salesman Should Be Wary in His Dealings With the Experienced Business Man

By Ray W. Sherman

"REILLY," said Henry Bennett, the Redman dealer and boyhood friend of the Sennett dealer, "I don't seem to be able to put 'em over like I used to."

"No?"

Reilly's "No" was one of those non-committal things that fill in the time while the other fellow is getting ready to say something else. It also lets him know he is expected to go on with his story.

"I sold cars all summer. I don't see any reason why I shouldn't sell them all fall."

"If you sold them—or had them to sell—all summer I congratulate you. We sold futures and imagination and got away with some of it," answered the Sennett man. "And now that we've got cars this fall we are doing fairly well. Tommy Trumbull sold two yesterday."

"Fine for Tommy!"

"Maybe he isn't a tickled boy! He's so enthusiastic now that I wouldn't be surprised if he sold two today," laughed Reilly. "But you're all right, Henry," he added. "All you need is a fresh shot in the arm and you'll do as well as ever." Reilly pushed back Bennett's sleeve and did a Sherlock Holmes to the accompaniment of a suitable vocal noise.

That Inferior Feeling

"But I don't seem to be as good a salesman as the men to whom I am trying to sell cars," lamented Bennett. "It's hard to handle them. To tell the truth, Reilly, I have always had that trouble. I feel inferior to the men I'm trying to sell."

"Well, if you feel that way you ought to be able to get over the feeling. A fault made known is more than half corrected," quoted the Sennett man.

"That sounds fine," replied Henry, "but nevertheless I don't seem to be able to get over it."

"It's nothing remarkable even if you have but just discovered it," asserted Reilly. "Now that you have brought up the subject, did you ever stop to consider that most automobile salesmen really are less capable salesmen and business men than the men who buy the cars?"

"No, I never did," was Henry's surprised admission.

"Well, they are. It sounds like an awful slap at the whole family of salesmen—and dealers, too—but just you stop

and analyze the situation. It isn't so much an assertion that salesmen are poor salesmen as that the buyers are extremely good salesmen."

"I believe that part of it all right," smiled Henry.

"It's true, too! Who buys the cars we sell, Henry?"



"You're all right, Henry. All you need is a fresh shot in the arm"

"Almost anybody."

"No, not almost anybody. They are bought by men with money."

"Yes, I guess that's right."

"And," continued Reilly, "the money they have has generally been accumulated through their own business ability. Take this man Flechter who bought a car of you the other day. Flechter was a poor boy, but he plugged and he plugged until he built up one of the best little



"The newness of the industry and the youth of the men in it are responsible to some extent"

grocery businesses in Callawassa. That indicates, surely, that Flechter is a man of business ability. And with his business ability is salesmanship, for salesmanship is a part of everything. The world is—

I was going to say ninety per cent—is nearly all salesmanship, even if a man doesn't realize that he is selling something.

"Now, you set out to sell a car to a man like Flechter; or any other salesman sets out to sell a car to some business man of the same caliber, and what is the situation? You have as a prospect a keen man of business ability. He is a good seller and a better buyer. On the other hand, your salesman—yourself in this case—is a young man who never had a great deal of this hard business schooling such as Flechter has had, and the young man perhaps never sold a car or much of anything else until a couple of years ago. Don't you see the disadvantage? You have the height of experience on one side and much less of it on the other. I think the motor car salesman who makes sales of this kind against any sort of opposition is entitled to a whole lot of credit."

Confidence Needed

"All very fine," admitted Bennett, "but what are we going to do about it? Here am I. I never had this business experience that has been Flechter's; I never sold anything at all until a couple of years ago. I am not even running my own business in as businesslike a way as it should be run. I know all that, but what am I going to do about it? I know these car buyers are a keen, crafty lot, and I know any one of them can trim me hands down when it comes to business."

"If you know it—as I said before—you are in a fair way to remedy the situation. You realize your condition, and you want to improve it. Once you get into that mental state you have some chance of bettering yourself. One of the things you need right now is a little confidence in yourself. With that you can make the start."

"Oh fine!" But Henry's "Oh fine!" meant "Oh punk!"

"This business is so young," continued the Sennett dealer, "that it is hardly possible to get salesmen who have had the years of experience that belongs to the men who buy cars. There are salesmen who are old at selling, but they generally are engaged in other lines of trade. Were they to come into the car trade and start anew there would be a profitable field for many of them, but they don't like to

leave a trade which they have spent years in learning, so the motor car trade has to be content with younger and less experienced men. There are old and experienced salesmen in the car selling business, but they are in the minority.

"The newness of this industry and the youth of the men in it are responsible to some extent for the money that is lost by dealers. Also, some of the loss is due to the fact that, while the dealer may not be a young man, he has been a mechanic all his life or has been in some vocation where he did not get business experience. It really isn't fair that such men should be pitted against such keen men as the buyers of cars.

What's to Be Done?

"When a prospect starts out to buy a car he shops. He pits one dealer against another and tells all kinds of stories about what so-and-so will allow in trade or will throw off on a car and the dealer too often believes the story. No matter how upright and honest a man may be he seems to degenerate into a liar when he sets out to buy a car.

"If the dealer or salesman were as keen a business man as the car buyer the dealer would not let it be put over on him in this way. The one big trouble is that the men who sell cars do not take this fact into consideration. They underestimate the caliber of the men who are buying cars. They do not enter into the work sufficiently fortified. They are like a political party which underrates its opponents. The mistake generally is discovered the morning after—which is too late by about a year."

"But what's to be done? How can we help ourselves? What's the answer?" tripled Bennett.

"As in all cases where there is to be improvement the present condition must first be ascertained and fully realized. Once the salesman or dealer realizes the true situation it will come very near correcting itself automatically.

"If you discover that one pants-leg is turned up and the other down you turn one down or up—as suits your fancy—but until you do discover the condition of your peg-tops you make no change. Now, the same thing applies in this case. If no thought is given to the matter and if the man who is selling the car does not sit down in quiet in his office or elsewhere and let this thing sink in he will continue as he has done heretofore.

"But if he wakes up fully to the realization that he is dealing with a keen bunch of business men and salesmen he will start anew and with a new selling theory. When he tackles a prospect he will do it in the understanding that he has a difficult task in hand, that he is up against a tough opponent, and he will watch the prospect to see that the prospect doesn't try to put anything over.

"If the salesman enters into the work in this spirit and if he continues to operate in this spirit he will become a better salesman and a better business man and eventually he will be a match for the average buyer.

"In the trading of cars too many dealers and salesmen want to allow a long price. They do not stop to consider that unless they can sell the car for the full list price they are below-par salesmen. The buyer has put one over. A car is worth its price. If it were not the manufacturer would go out of business. Some cars have not been worth the price and the manufacturers have gone out of business. If the car, therefore, is worth the price the buyer should pay that price—and he will pay it if he actually is sold on the proposition."

"But if he is a better salesman and business man than the man who is selling the car he is quite likely to sell nine

hundred dollars of his money to the dealer and get a thousand dollars of car for the nine hundred."

"That has been done," commented Bennett with a wan smile.

"Yes—many times."

"I'm going to stick to the used car market report from now out," asserted Bennett, and he whacked the desk with his hand.

"The book's good dope," asserted Reilly, and he laughed as he continued. "Tommy pulled it on a would-be trader the other day who wanted four hundred dollars for an old boiler. The book said one hundred and fifty.

"What's that?" he demanded.

"Trade price book" said Tommy.


"You mean dream book, don't you?" he snapped.

"What did he do?" asked Henry.

"Went down the row looking for four hundred dollars."

Strives to Regain Patronage That Has Ceased

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HIGH GRADE AUTOMOBILE REPAIRING

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FORMERLY FOREMAN OF REPAIRS
RICHARD MOTOR CAR CO
ALL WORK FULLY
GUARANTEED

October 19th, 1915.

Dear Sir:-

On founding this business my aim was to produce the best work and give the best service in this city. Seven very successful years have only served to prove that policy correct; to strengthen my desire to improve an already high-class reputation and to strive to better my service if possible.

I have served you under the above policy in the past, and now seek your valued orders for such repairs as your cars may require at the present moment.

I may be consulted without obligation at the above address at any time, on any question relative to your cars on which you may desire authentic information.

Knowing that you have enjoyed satisfaction with my past service, with improved facilities I feel better prepared than ever to maintain your continued good-will.

Trusting my efforts warrant your valued patronage, I remain,

Very truly yours,
R. B. Laffay

RBL/RD.

The man to whom this letter is addressed used to have his repairing done by Laffay. He ceased to be a customer because he sold his car. An investigation of his books showed Laffay this was one of the customers he seemed to have lost, so by this letter of amicable tone he strives to bring back the trade. It is an idea worth using in any garage or shop. The books of every shop contain names of departed patrons and many may be regained. If a little grouch is the reason for the departure a letter like this may uncover it

Stock Motors Reveal Engineering Advance

Repair and Maintenance Problems Simplified Through Use of Lighter Parts, Better Material and Assembly

The Desire

Higher maximum speed
Lower minimum speed
More power at all speeds
Greater quietness
Better gasoline economy
Lighter weight
Less vibration
Better oil economy
Smoother torque
Cheaper construction
Greater accessibility

taneous with the adoption of higher speed, larger valves and pressure lubrication; that the American motors of 1916 were going to be more changed and modernized than is usual in progress from one season to the next. Not only had we the eight and the twelve, but the small, light six was gaining in favor and proving that it could do everything the old-fashioned big, heavy six could do.

Small Bore Better All 'Round

Hence we have seen many motor manufacturers turning attention to sixes 3 x 5 in. or thereabouts which will run up to 2,000 r. p. m. and over and develop their maximum power at 1,800 r. p. m. or so. Such motors are eminently suitable for the low high gear ratios now demanded to give "ability" at low car speeds. They are better for the owner because they are far more economical; they are better for the manufacturer because they are cheaper, and they are better for the dealer because they are easier to keep in good condition and simple to repair.

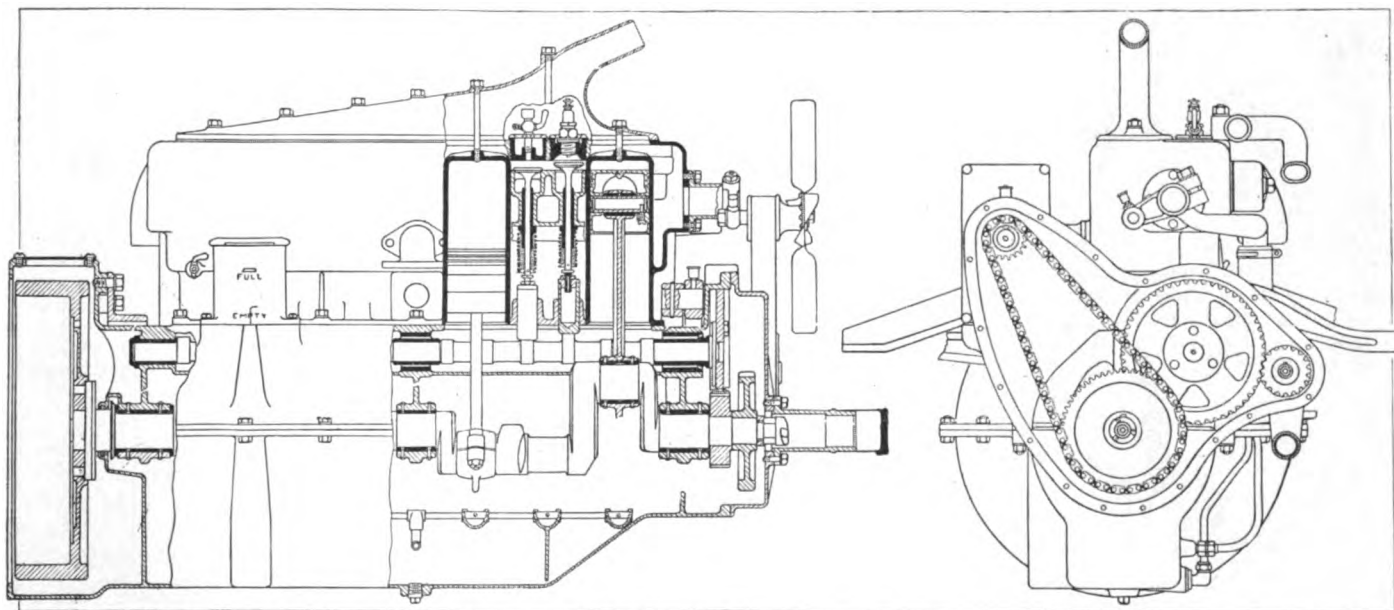
The Result

The eight; the twelve
The aluminum piston
The aluminum cylinder
Larger crankshafts
Pressure lubrication
Higher compression
Larger valves
More elaborate cams
Simplified gas passages
Greater rigidity
Less machining
New machine tools

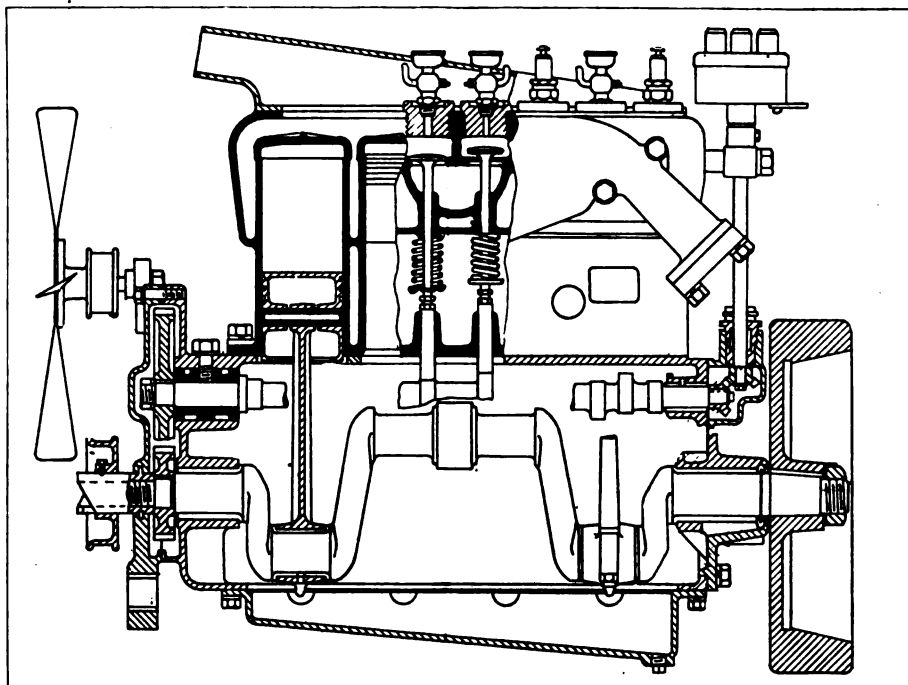
STOCK MOTORS of 1916 are better engineering jobs than most of those popular in 1915 models and mainly this is due to the elimination of really old designs, though it is also largely on account of the introduction of new models.

Last year it became obvious that the coming of the eight was to be simul-

One thing which the dealer, the garageman and the repairshop operator ought to hail with joy is the growing popularity of detachable cylinder heads. Given a work bench and the detachable head provides the ideal way of getting at valves and of scraping carbon. Given a little practice and it is far easier to refit a detachable head with a good tight



A typical example of modern high efficiency six-cylinder design is the Model motor made by the Pittsburgh Model Engine Co., Pittsburgh. The dimensions are 3 x 5 in. giving a piston displacement of 212 cu. in. The pistons are light iron castings and the crankshaft 1 3/4 in. diameter with three bearings. It will be noticed that the piston pin is fixed in the piston, a practice that is gaining favor. The valves are 1 3/4 in. diameter with 1/4 in. lift and the tappets are of light, hollow section with flat heads. In the front end gears are used for the camshaft drive and an adjustable chain for the generator drive.



The Perkins four is a well-known small engine of great simplicity and is featured by the small number of parts. Several sizes are made of correspondingly clean design

joint than it is to make twelve valve caps leak-proof. If the car is used in a hard water district there is a chance to get at the jackets to clean them out. Altogether the loose head enables the repairman to give more efficient service to his customers because it enables several jobs to be done more quickly.

Then, too, there has been a great cleaning up of detail. Many small pipes have disappeared and it is no longer half an hour's work to find out what var-
out things are for. The block motor with most of its gas passages inside the

casting, with internal oilways and so on, has fewer parts and is correspondingly less susceptible to trouble.

Today the average stock motor is superior in simplicity to the average special motor.

Even the eights when reduced to stock form become fairly simple, though naturally rather more skill is required in fitting bearings when they are compound.

Another noticeable simplification is to be found at the front end, where the number of gears and the number of shafts for accessory driving has been

reduced, which assists overhaul work and makes timing simpler.

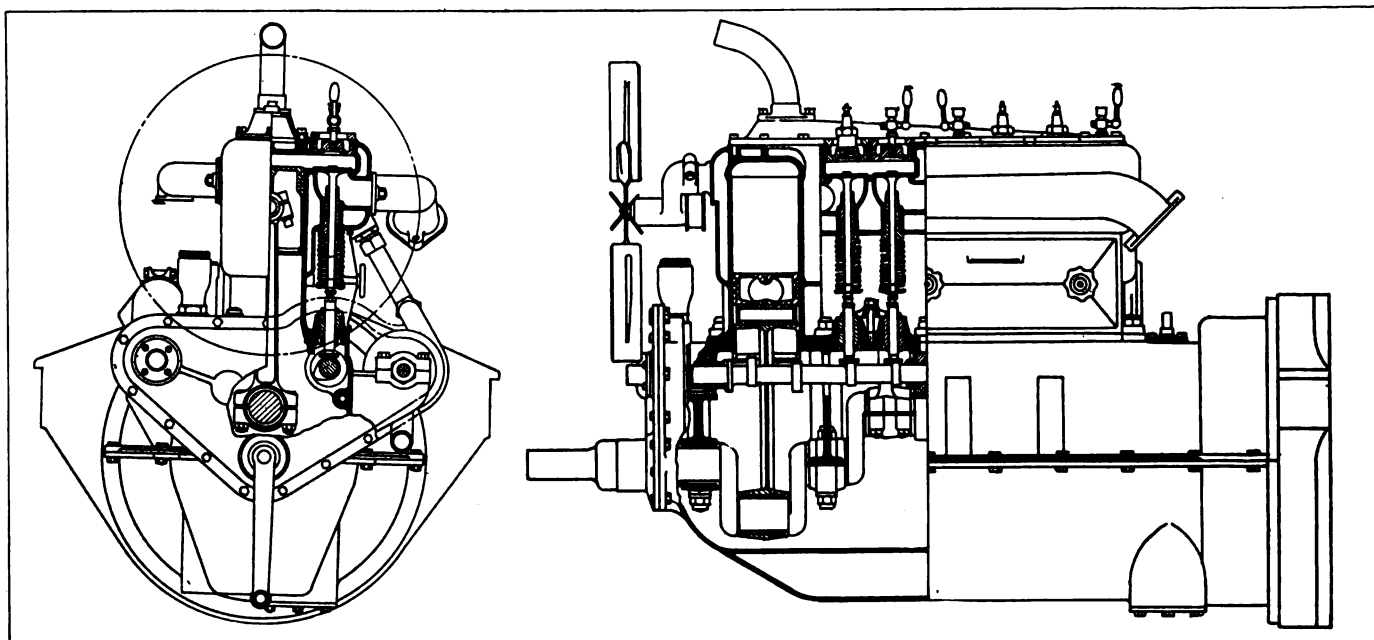
Still 1915 has been a transition year, and we are not yet through. Every month has produced some fresh point in motor design and never before has there been such hot argument among engineers, so more new things are to be looked for in 1916. In the following the principal trends are examined more in detail and each one marks a step forward in practical engineering.

Overhead Valves Will Increase

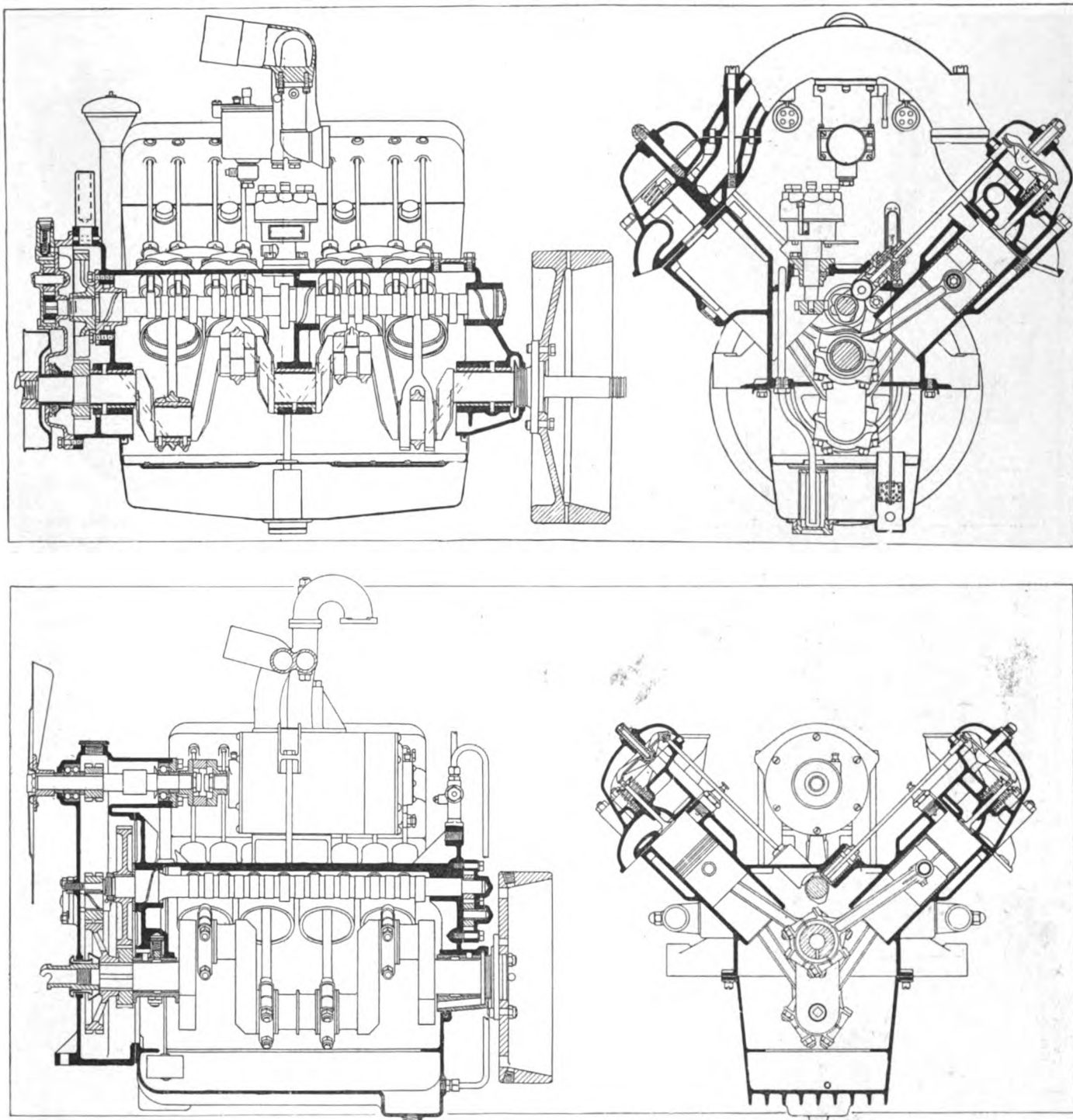
A conspicuous trend toward the overhead valve is likely to persist. The old idea that an overhead valve is essentially noisy is exploded utterly; the present trouble in the main is to control the lubrication of rockers and parts above the cylinders without flooding the valves themselves.

Intimately bound up with the overhead valve is the detachable cylinder head that is returning to popularity, both for cheap motors and engines of the very highest class. Whatever the type of valve, the detachable head is a great advantage, particularly in the repairshop, because it renders carbon removal and valve grinding far easier than with any one-piece L- or T-head motor. It is a manufacturing advantage with most designs, and there is now no difficulty in replacing a head so that the water and gas joints are tight. Actually it is probable that less leakage occurs with the detachable cylinder head than normally is found around the valve plugs in the other type.

Given the detachable head and the necessity for valve cages disappears, and it is the cage that has been liable to



Though primarily a heavy-duty motor this example of Wisconsin manufacture is typical in outline. The four crankshaft bearings are a peculiarity which is favored by the Wisconsin engineers and gives an exceptionally firm support for a four-cylinder crankshaft. The crankcase is all aluminum and lubrication is by pressure. Notice the very large water spaces behind the valve pockets, between the valves and the cylinders, also the light, mushroom-headed tappets



These drawings show two examples of the eights designed by A. P. Brush and made, the upper by Ferro and the lower by Sterling. They have many points of similarity, of which the principal one is the overhead valves, the special type of rocker operation, and the casting of the two blocks of cylinders in one piece with the upper half of the crankcase. As can be seen in the cross sections, the rockers seat on ball shaped bolt heads instead of on the ordinary pin joint, and this facilitates adjustment because the bolt can be screwed down a little from outside the motor, so lowering the whole rocker and taking up any slack. Points of difference are that the Ferro, which is the larger, uses three crankshaft bearings and forked connecting rods, while the Sterling has the other kind of rod and only two crankshaft bearings

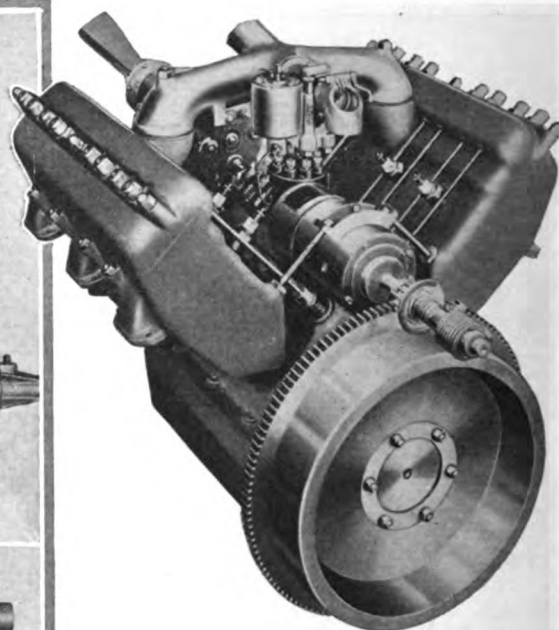
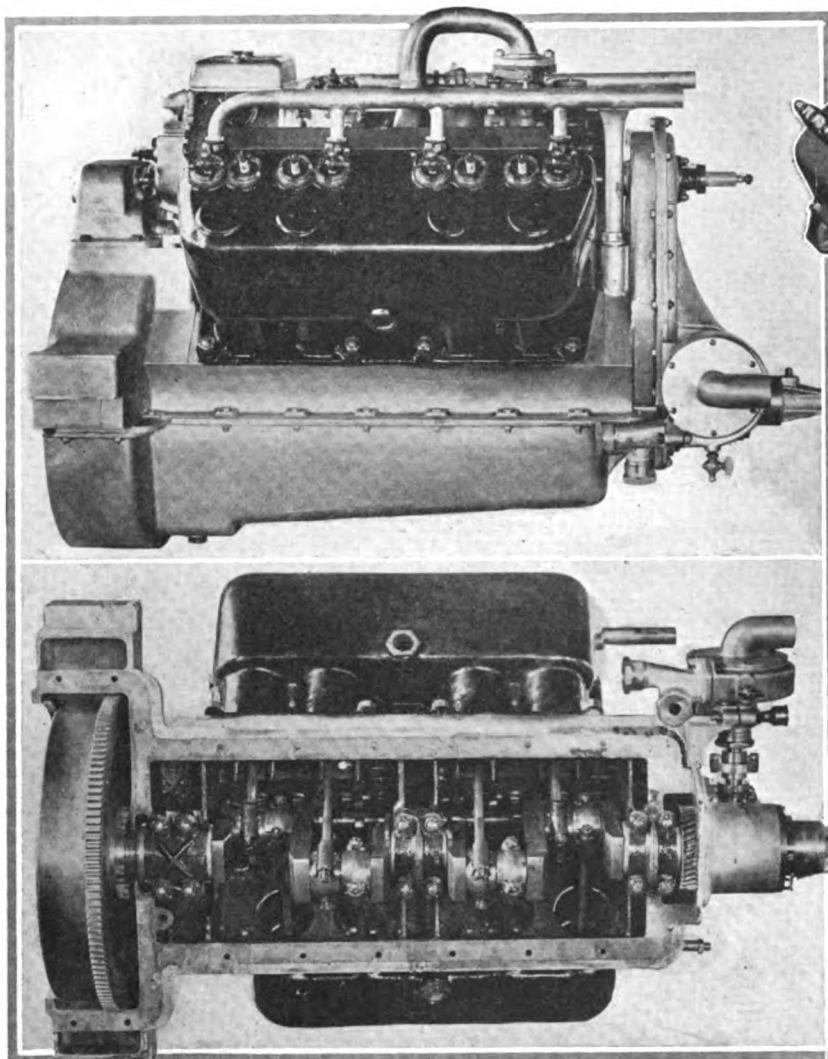
give most trouble in overhead valve motors. Cages are satisfactory enough just so long as the volumetric efficiency is not very high, but as soon as pressures and temperatures rise there occurs trouble in cooling the valve cage seating and danger of cracking the cage. Removing and replacing a cage is more difficult than handling a detachable head.

While it becomes universal for racing, the overhead camshaft is not too attrac-

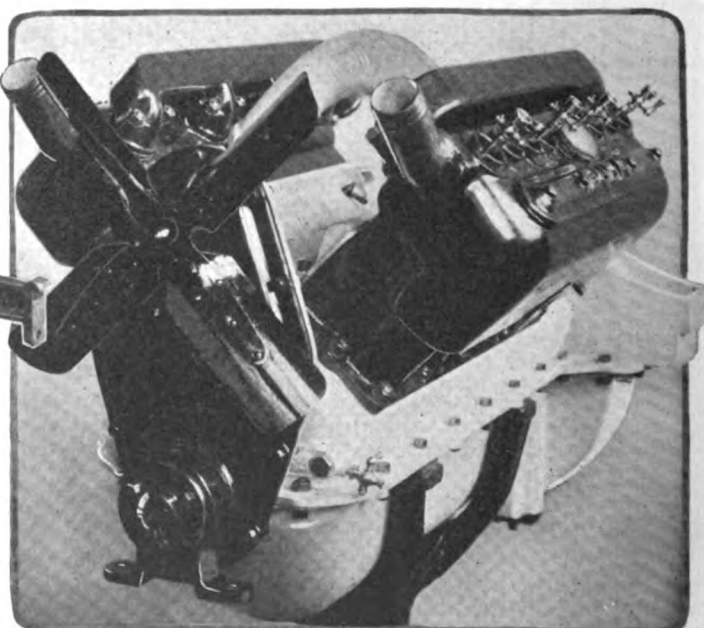
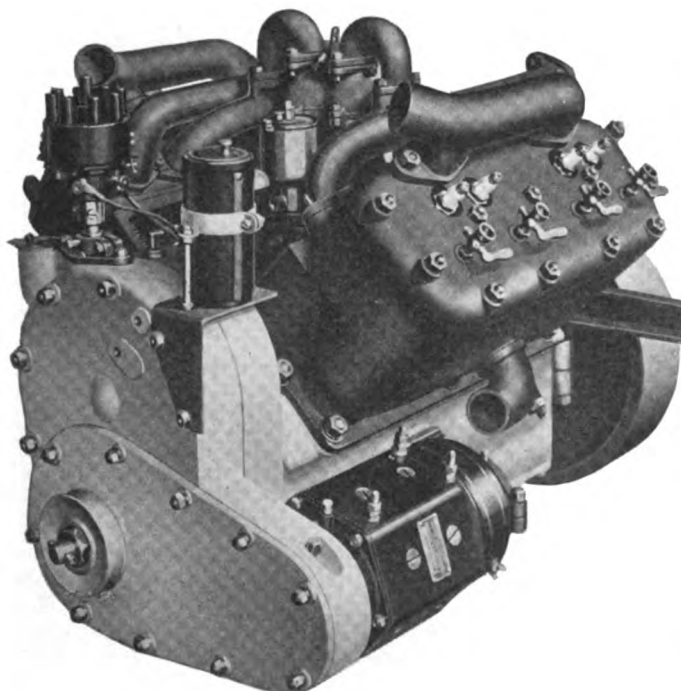
tive for touring car engines, because a quiet drive is difficult of attainment and lubrication is rather complicated. With the camshaft in the usual place and long, light push rods, it is now easy to design an enclosed rocker mechanism which will be self-lubricating without a pump feed, and the final arrangement will be more accessible than any overhead camshaft job.

The chain-driven camshaft has not de-

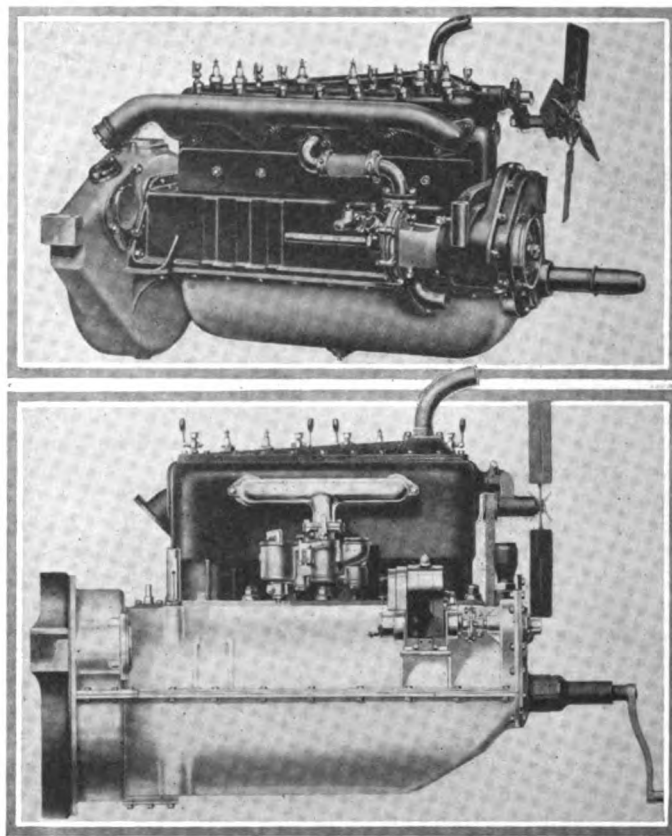
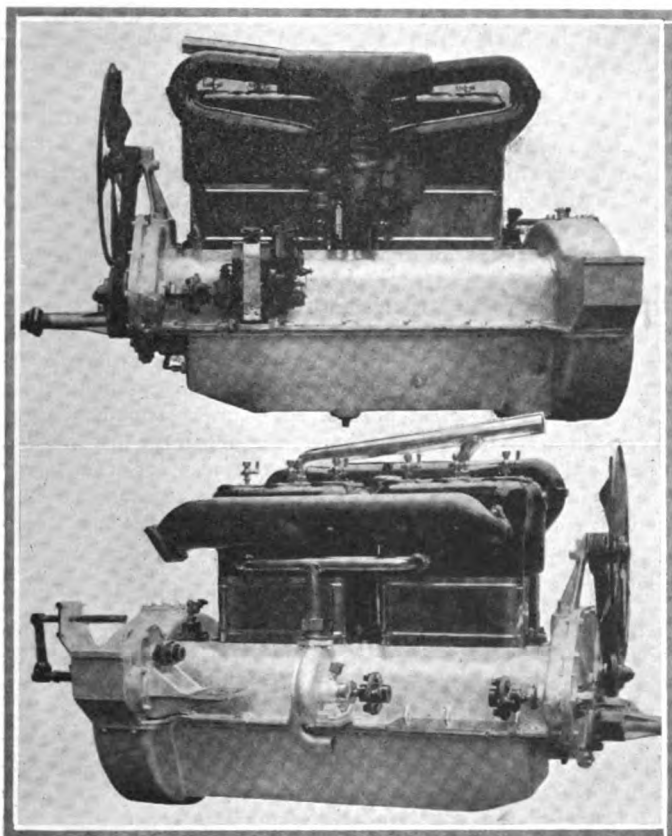
veloped to the extent expected because manufacturers have been loath to spend enough to insure a good chain. Good chain is expensive to make and cannot be sold cheaply, and there are only quite a few firms in the world who can make really good chain. Also, the application of a chain drive needs expert knowledge and motor car designers have often used chain in a way that no chain maker would approve. In such cases failure is



A contrast in eights is provided by the Herschell-Spillman at the left, seen from the side and from beneath, and the Ferro at the right. The former is an L-head motor and has the side-by-side connecting rod arrangement, while the latter is provided with the most up-to-date idea in overhead valves and uses the forked connecting rod system. The great rigidity of the bearing support in the Herschell-Spillman motor is observable. The bearings in this motor are finished by a unique burnishing process developed by the manufacturers which puts such a dead flat surface on the babbitt that the new bearing takes a full seating without running in, so making for great durability in service. Connecting rod bearings can be taken up just as for any other type of motor



Left—The Port Huron eight which is distinctive by having the camshaft very high up. The valves are inclined at an angle of 135 degrees, which enables one cam to be used for each opposing pair of valves with straight push rods and no rockers. Detachable cylinder heads make the valve heads accessible and the wide angle brings the tappets into a position where they can be reached without as much trouble as usual in L-head eights. Right—The Buda eight, a robust motor with all the characteristics of high quality workmanship that have given the Buda fours and sixes their reputation for long, trouble-free service. The connecting rods are set side by side, the cylinder blocks being staggered to permit this. There are eight cams operating the valves through rockers



These are three typical and different motors. At the left are two views of the Herschell-Spillman six, a large and powerful T-head design. The intake is a Herschell-Spillman specialty. Excellent accessibility is a conspicuous feature, as can be seen by the ample space around every part. Upper, right, is the popular Continental light six, a new motor this year. It has a one-piece cylinder block and crankcase upper half and is $3\frac{1}{2} \times 5\frac{1}{8}$. The oil pump is a plunger, driven off the camshaft and so very accessible, while valve accessibility is assured by the detachable cylinder head. Lower, right, is quite different, being a heavy-duty Wisconsin four. This is the only motor in the group with an L-head cylinder and it may be seen that the carburetor and magneto are very easy of access.

usually blamed on the chain, which is totally unjust.

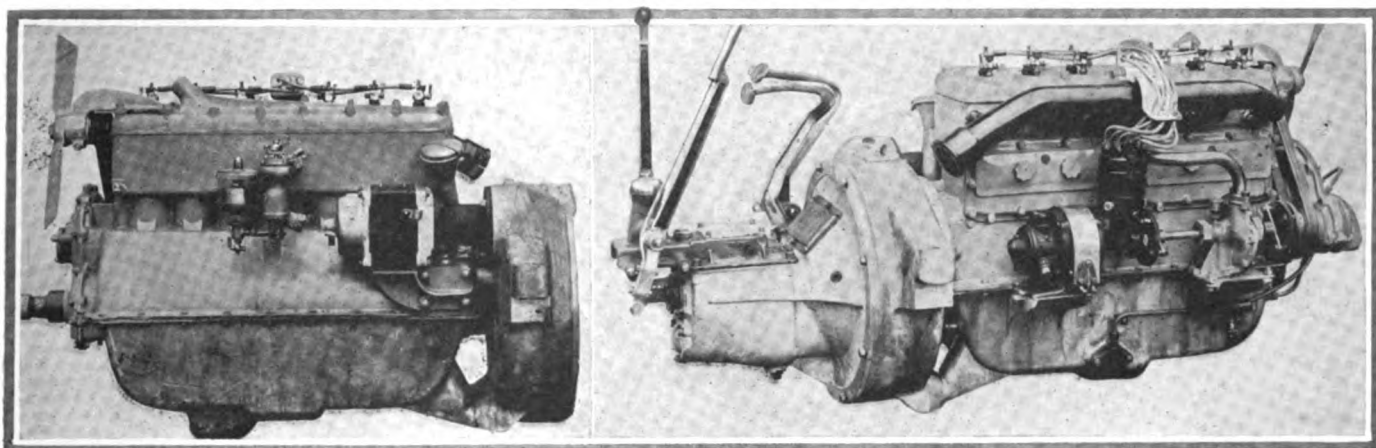
Chains must be kept fairly tight or they thrash to pieces. Where gears are used for camshaft driving it is often found that a chain is used for the generator shaft. Reasonably frequent examination and adjustment of such chains is desirable, as some of them are slightly overloaded.

After years of experiment, years of

skepticism, the aluminum alloy piston has been accepted and bids fair to become the standard. The rapidly rising price of aluminum has retarded this development, but despite the high price aluminum pistons are now fitted to motors on quite cheap automobiles. The aluminum piston, weight for weight and strength for strength, is the cheapest type. The light weight is necessary because of high piston speeds and it is

cheaper to obtain it by using aluminum than by elaborately careful machining of iron or steel.

In the race for lightness, the aluminum motor will make its debut as a standard product on one 1916 car alone. Naturally this is a high-priced car, for aluminum cylinders are out of reach of the cheap car maker with the metal at its present price. During 1915 something like 50 cars have been in use with alumi-



One of the most popular of the light sixes, and one of the most successful, the Rutember 3 x 5 in. motor. This engine is one of the neatest and cleanest examples of the one-piece cylinder block and crankcase variety, and has the extra credit of being a pioneer among the light sixes of the year. All the intake manifolding is done within the casting, and the water pump with the generator and igniter unit are placed low enough to render tappet adjustment easy without removing more than the cover plate. A peculiarity is the use of a vane pump situated on the extreme front end of the camshaft for oil circulation, this also being very accessible.

num cylinders, and none have given trouble on this account. Each car was some 80 to 120 lb. lighter on this account and so great a saving is well worth a small price increase. Development along this line depends entirely on the price of aluminum; should this fall the aluminum motor will become common very rapidly.

A gear ratio of 4.5 to 1 on high gear means a crankshaft speed of 2,000 r. p. m. at 50 m. p. h. approximately. Again approximately, this gives a piston speed of 1,700 ft. per min. at 50 m. p. h., or 70 per cent above the speed on which the formula horsepower is based, if we assume an engine with the extremely popular stroke of 5 in. This increases the amount of any unbalanced force, or the pressure on the bearings due to inertia of the reciprocating masses as much as 89 per cent. In other words, the high-speed engine has almost double the unbalanced force of the old type if all other things are equal except gear ratio.

Unbalanced Forces Reduced

In practice, of course, the high-speed engine has much lighter parts, and therefore is able to run at high speed with no greater vibratory stresses than the larger slow-speed motor, but the public have not been satisfied with the old type; so it has been necessary to reduce unbalanced stresses below the old level simultaneously with an increase in speed.

Therefore the weight of reciprocating parts has been reduced enormously, size for size, and pressure on bearings reduced likewise, so that the balanced and unbalanced stresses due to the reciprocating

masses in the 1916 engine may easily be less than in a 1915 engine of the same piston displacement. Multiple cylinders reduce the unbalanced forces by reducing individual piston weights, and higher speed sixes have allowed dimensions to be cut and weight reduced in proportion. With any motor having more than four cylinders it has been the balanced forces that have proved most troublesome.

Valves Half Cylinder Bore

In Europe two years ago it was obvious that the stock motor makers had picked upon a valve diameter equal to half the cylinder bore as the practical maximum, and large valves with a small lift were used generally because this combination gave the greatest opening with the least noise. Today the best American engines have valves of just about this same proportion and it is customary to find the lift is such that the full port area is available at maximum valve opening.

Quietness of valve operation has been shown to be affected greatly by the weight of the tappets, and a light tappet enables a lighter valve spring to be used. Everything which will reduce the inertia of the valve, tappet and valve spring is desirable. It is the search for quietness that has caused the roller ended tappet to gain in favor.

With the coming of higher piston speeds lubrication has become troublesome. Particularly in engines with many small cylinders, where the total piston periphery is large in proportion to the piston displacement, there has been a tendency for water to deposit in the

crankcase and this has given great distress to several manufacturers.

The reason is that the loose pistons deemed necessary for high speeds have allowed products of combustion to pass freely at low speeds, and the water from these products has condensed. Hence the efforts of V motor makers have been rather to insure the presence of plenty of oil in the cylinders than otherwise. The trouble is new this year, and is serious, because the water has a terribly destructive effect.

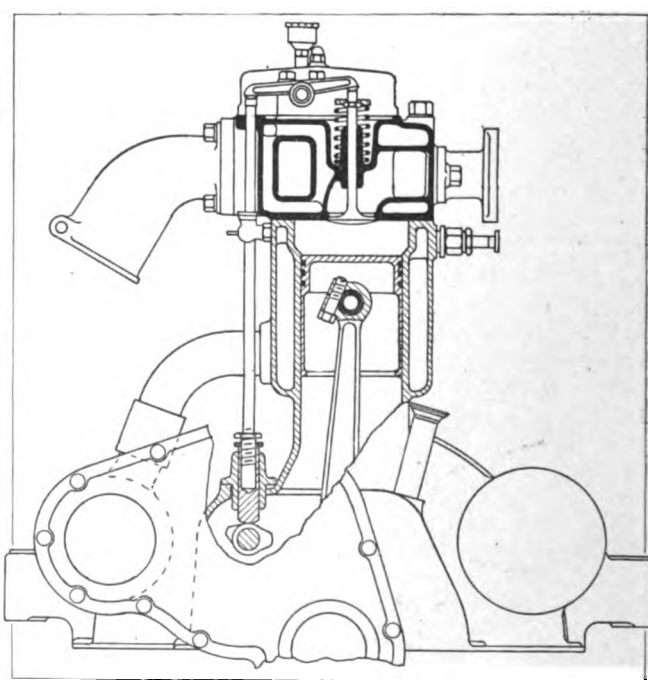
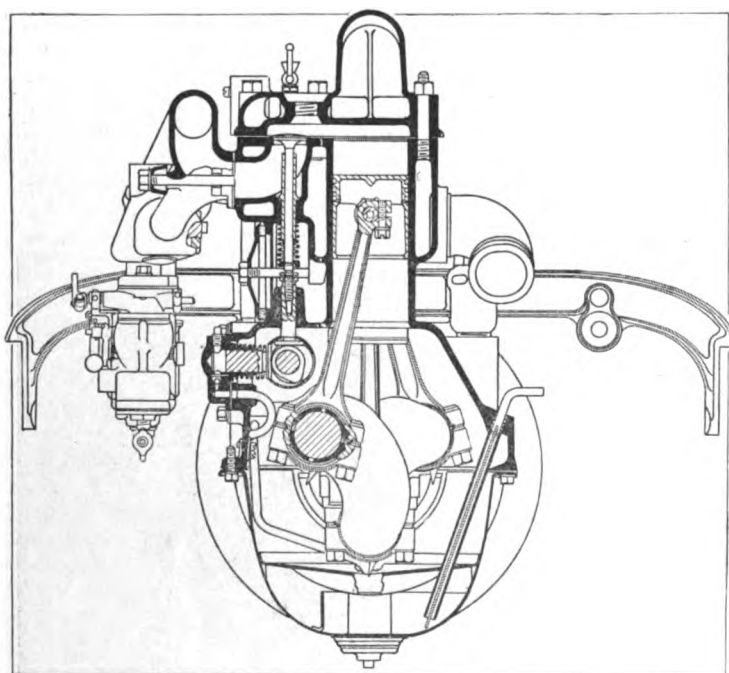
To overcome it, for it has been overcome, pistons have been tightened a little and bottom rings or V-shaped "lifting" grooves have been put in the piston skirt. None the less the user of a new car may find it worth while to change the oil a little more often than he had to do with older cars.

Pressure Lubrication Gains

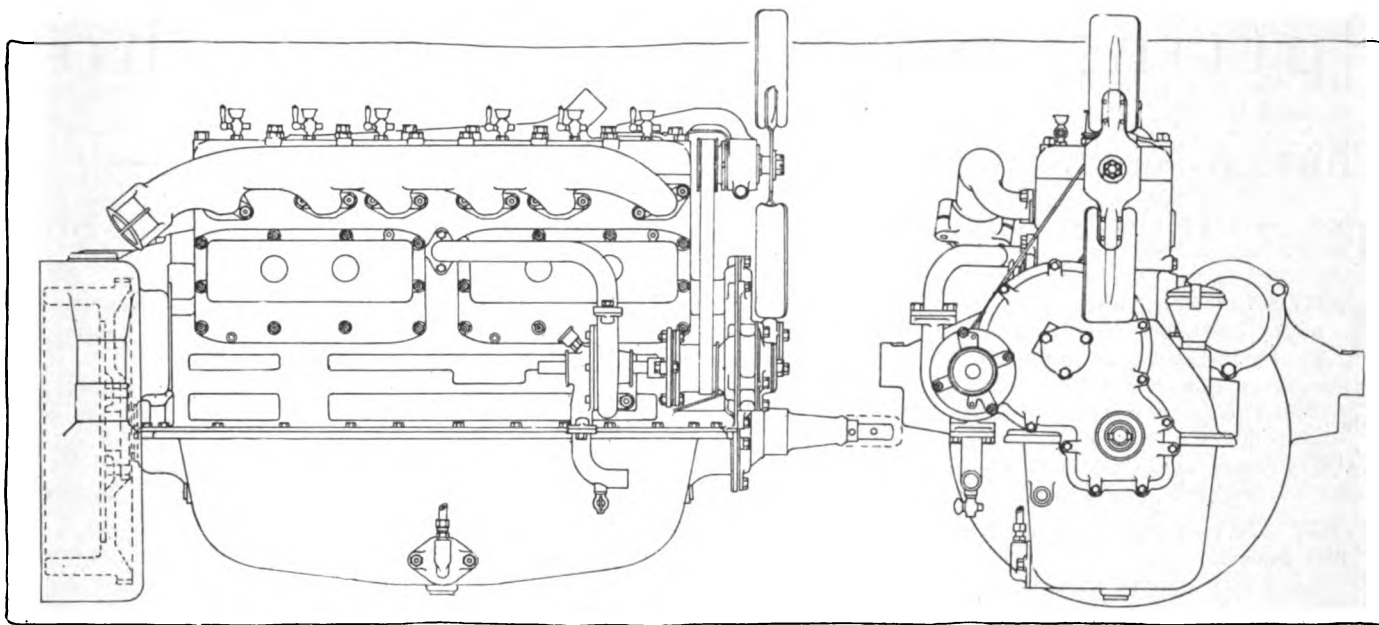
The most striking development of lubrication has been the coming of the pressure system. This has gained steadily and is now used very widely.

In stock motors the lubrication is almost universally by dip troughs in combination with separate leads to the main crankshaft bearings. A few motors have drilled crankshafts, but they are rare and not used on many cars.

With very few exceptions, where plunger pumps are employed, they are driven from an extra cam on the camshaft, the plunger being lifted by the cam and depressed on the suction stroke by a spring. Where there is a gear pump it is most often located in the crankcase and driven by a special ver-



Left—One of the smallest and most widely used sixes is the Continental power plant of the Saxon. Note that the oil pump is operated off one of the exhaust cams and that there is a detachable cylinder head. Large waterways and free gas passages are also characteristics. Right—Section through the cylinder head and valve gear of a Falls motor cut through one of the exhaust valves. This section is instructive because it shows the way the intake manifold is carried through the water jacket on the head block, this being the inner rectangular black section just to the left of the valve



The latest Rutenber, in which all castings are made at home, has light reciprocating parts and balanced crankshaft and develops 41 horse-power at 2,000 r. p. m. Provision is made for mounting standard lighting and starting sets

tical shaft off the camshaft. Of course the plunger is cheaper and it is just as good for speeds up to 1,800 or a little over. It also has the advantage that it is easily accessible for cleaning.

In almost all motors, whether stock or special, there is room for improvement in the means provided for removing the filtering screen, but it is noteworthy that the 1916 stock motors are generally better provided with screening gauzes. Higher crankshaft speeds call for more perfect oil as well as for better distribution of that oil.

When the Cadillac eight made its first appearance on the drafting board it was already the intention to make it a high efficiency motor, to use high working pressures and high bearing pressures. Thus it was designed with a full pressure lubrication system as had been common on high class fours and sixes abroad.

As the other eights appeared, the desire to make them highly efficient as well as novel, persisted, so other designers and engineers turned to the pressure system naturally. There then arose an impression that the eight had to have a pressure oiling system, for some mysterious reason, though this is not necessarily true.

The fact is that to drill the simple four cylinder crankshaft for internal oiling is much less expensive than to perform the same operation for a six, so the better system could be used without extravagance. Also the lower end bearings of the connecting rods of the various patterns were all experimental to some extent, and the manufacturers felt safer with oiling that could not fail. Experience suggests that, if the maximum speed is not too high, trough oiling is quite practical for eights or even twelves. There has been remarkably little trouble

with V motors due to one set of cylinders getting more oil than the opposite set, as was anticipated at first.

This year has seen almost every engineer more interested in the V motor than in anything else, so we often find that a big motor manufacturer has made his eight the principal new model, embodying most improvements, and has left the remainder of his product fairly well alone. The high pressures of the new eights have not caused trouble, the lubrication systems have worked out well and so on; wherefore it is to be expected that next year will show us various high pressure, high efficiency sixes and fours in which the experience gained with the eight will show up.

Larger Valves in Fours

Fours are so often made solely for cheapness that the efficiency enthusiasm has not yet put its mark upon stock motors of this number of cylinders. Here and there new designs have valves made larger, bearings bigger and everything stiffer, to permit increased revolutions, but the movement which is well advanced in the eights and is started and on its way with the sixes is only to be observed in the stock fours by very close observation.

For circulating cooling water the centrifugal pump still is king. Thermosyphon cooling gains slowly, but it does seem to be specially applicable to V engines, because the low altitude of the latter allows a good head of water in the radiator and a good head is the life and soul of a successful syphon system of circulation.

The most striking thing about water systems is not to be observed from outside a motor, and seldom to be appreciated from sectional drawings, as it is the increased amount of water space

around the valve ports and pockets. In raising the efficiency of an engine the valves soon suffer if they are not well cooled, and also, which is more important to the average owner, if the valves are overheated and their accuracy of closing injured thereby, then slow running becomes difficult.

It has been remarked that carburetor makers are being called upon to supply instruments which will give gas at very low speeds, and to do this a steady suction is imperative. If the valves are not functioning perfectly the suction will vary and the carburetion will be upset.

The materials used for engine parts have undergone some change but not a great deal. The rising price of aluminum has rather encouraged the use of iron for the upper half of the crankcase, as instanced by several of the light sixes, and the popularity of the detachable head has helped this system of construction because it simplifies the foundry work. Casting an L-head motor with crankcase and cylinders in one with a fixed head is difficult because the cores become rather complex, but with the loose head the casting is easier than for an L-head cylinder block without the crankcase portion.

Steel as used for crankshafts is usually of about the same strength and character as that employed last year, as the upward trend in size of shaft enables more than enough strength to be obtained without the use of very high tensile material.

For valves tungsten steel would have been the rule, had the supply of tungsten ore not been almost cut off by the war. Cast iron heads welded to steel stems are still fairly popular, but are giving way slowly before the improved valve steels which mostly have tungsten as an element.

Putting on a Motor Car Show

Thirteen Necessary Steps Lead up to a Successful Venture—

It Is Always Best for Dealers to Run Their Own Show

THERE are three ways in which a motor car show can be handled.

It may be run by the local dealers interested; it may be handled by the local automobile club; or it may be managed by some outside promoter. The best way, from every angle, is for the local dealers to run their own show.

FIRST STEP—Conferences with individual dealers.

It having been decided that the show was to be under the direct control of the dealers, the first step was to see the dealers and get their ideas and bring them together. Each dealer was visited and the matter talked over.

SECOND STEP—Informal meeting of dealers to talk over show matters.

A preliminary informal meeting was held early in January, two months before the show was held. A majority of the dealers in town attended, and as all of them were in favor of organizing, it was arranged that a meeting for the purpose should be held two weeks later.

THIRD STEP—Organizing, electing officers and adopting constitution and by-laws.

At the organizing meeting 15 dealers, of 35, became members. Officers were elected and by-laws, previously prepared,

were adopted; it was decided that the stock should be divided into 50 shares having a value of \$2 00 each.

FOURTH STEP—Selling stock and holding stockholders' meeting for incorporation.

The secretary then proceeded to sell stock to the dealers. As soon as he had sold 25 shares a meeting of the stockholders was held and the association was incorporated. The stockholders decided, by vote, that they would take up the remaining 25 shares of stock; according to the by-laws no member could have more than three shares.

All the dealers in the town did not join the association. Every dealer, however, whether in the association or not, was considered as being entitled to one space at the show. If more than one

space was needed, the members were given the preference and non-members had to take what was left.

This finished the work of organizing and established the fact that the dealers really intended to have a show. A short time later a meeting was held to consider the actual work of holding the show.

FIFTH STEP—Meeting to consider details.

Naturally the first thing to consider was the housing of the show. This is one of the many points that will differ with the locality. In the case of Utica, the state armory was the place settled on, and this was rented for the six days of the show for \$533. A contract was made out stating that the association rented the armory for a specified time at a specified price. A \$10,000 bond was given the state to cover any damage that might be done to any portion of the armory through the carelessness or negligence of the temporary occupants, and this bond cost the association \$60. The dealers would have had to pay for such damage as spoiling the appearance of the floor or walls with oil or grease, marring the woodwork, damage by fire, breakage, etc. As a matter of fact, careful watching and insistence

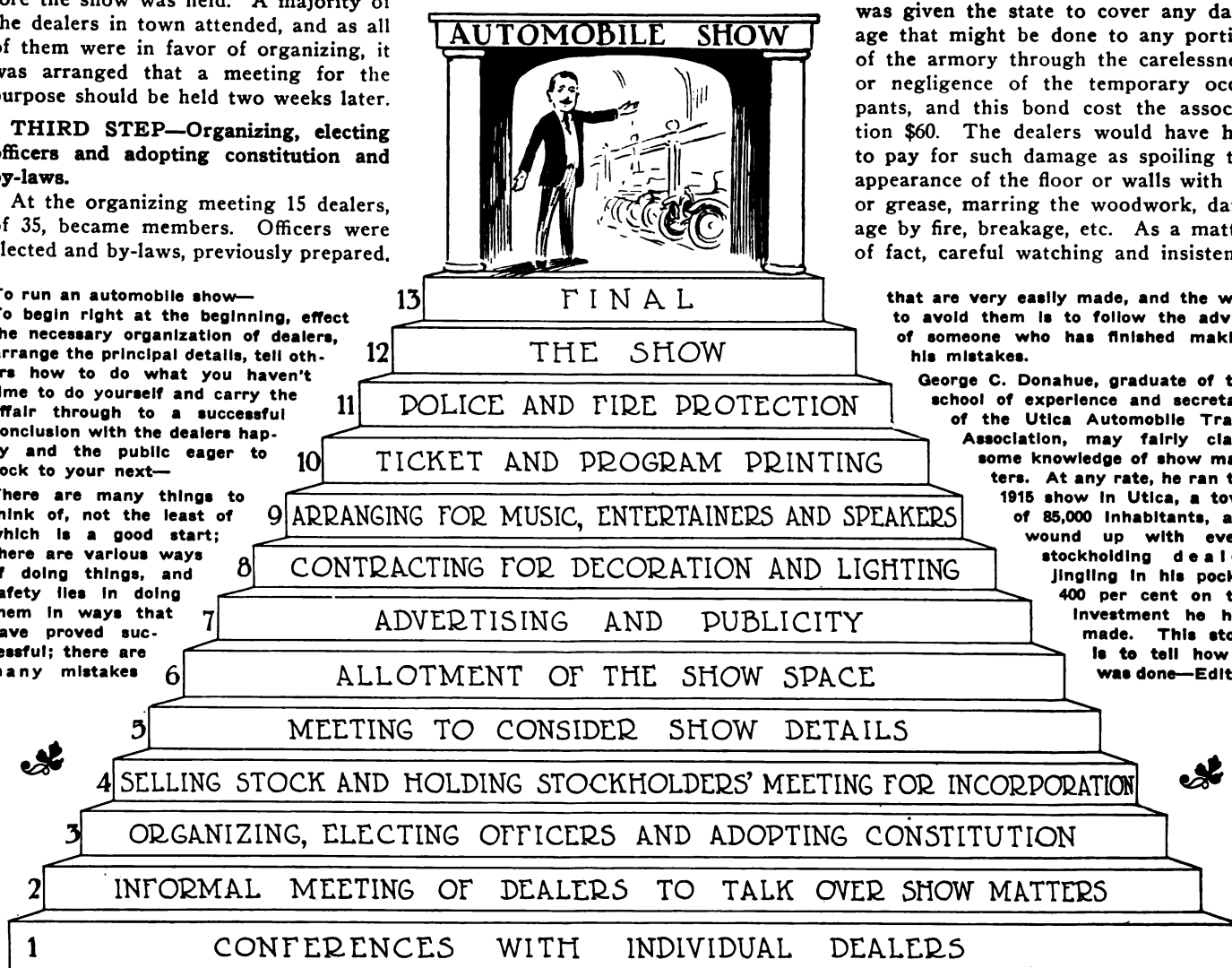
that are very easily made, and the way to avoid them is to follow the advice of someone who has finished making his mistakes.

George C. Donahue, graduate of the school of experience and secretary of the Utica Automobile Trade Association, may fairly claim some knowledge of show matters. At any rate, he ran the 1915 show in Utica, a town of 85,000 inhabitants, and wound up with every stockholding dealer jingling in his pocket 400 per cent on the investment he had made. This story is to tell how it was done—Editor.

To run an automobile show—

To begin right at the beginning, effect the necessary organization of dealers, arrange the principal details, tell others how to do what you haven't time to do yourself and carry the affair through to a successful conclusion with the dealers happy and the public eager to flock to your next—

There are many things to think of, not the least of which is a good start; there are various ways of doing things, and safety lies in doing them in ways that have proved successful; there are many mistakes



upon the use of drip pans prevented damage, so there was nothing to pay.

SIXTH STEP—Allotment of space.

Blueprints were made of the armory floor space. The building is 120 feet long and 80 feet wide and accommodated about 1,200 people at one time in the aisles. The area was divided into 44 spaces; the matter of division naturally falls into the class of variables, as the size and shape of the building and the number of exhibitors must be taken into consideration. An important matter was the method of deciding what the charges for the spaces should be. This was arrived at by dividing the total cost of the show by the number of spaces. All the spaces being of the same size, the plan of charging by the square foot was not adopted.

Blank contracts were printed and mailed to the dealers, who filled in the number of spaces they desired to use, the maximum allowed being three. When the contracts all had been returned a meeting was held to allot the spaces. Incidentally, the rule was laid down that spaces contracted for must be paid for before allotment, and the rule was strictly followed.

At the allotment meeting the dealers drew lots from a hat to decide priority of choice. Those who had contracted for two or three spaces were allowed to draw before those who had contracted for only one. The man getting the best draw took first choice of spaces. The result of the drawing was entirely satisfactory to all the dealers.

SEVENTH STEP—Advertising and Publicity.

The success of a show depends in no small measure upon the public interest aroused beforehand by the publication in the newspapers of items of interest of all kinds connected with the enterprise. The man who handles this publicity work should be experienced in that particular line. A man who doesn't know what to do in running a publicity campaign will not get good results.

The mere printing of a considerable number of column inches of matter concerning the show does not in itself constitute the kind of publicity that does the most good. There must be some real information in the items, and there must be information of various kinds, calculated to interest the various classes of show visitors. The technical men and others with mechanically inclined minds will read of the detail changes and improvements made in the motors and chassis; upholstery, painting and body lines will interest another class; closed cars have a large and increasing following; and judiciously used items regarding speed capabilities, power and the like will make good reading for others.

Every bit of publicity should be well

and entertainingly written. Generally speaking, well-written stuff that is a little thinly spread with facts will do more good than a solid mass of real information thrown together in an indigestible lot of lumps. On the other hand, there is little use trying to make effective publicity out of thin air and blue sky.

For three weeks prior to the opening of the Utica show items appeared in the daily papers, and during the week of the show matter was prepared each afternoon and evening by a reporter hired for the purpose, who was constantly on the job. He kept the papers supplied with plenty of matter, which served to supplement what their men picked up, and, of course, helped the editors greatly in getting out show stories.

The dealers themselves contributed much of the matter used as publicity. At first there was not a great deal that was available, but as the time for the show approached the amount increased, until a week before the opening date it was necessary to engage the reporter to take care of it. This same man covered the show itself for the association.

For advertising 400 posters were printed at a cost of \$23.50, 100 window cards at \$10, and 10,000 stickers for \$4.50. The posters were distributed in the neighboring towns and villages.

EIGHTH STEP—Contracting for decoration and lighting.

A notice was inserted in the newspapers regarding the decorations of the armory so that all the decorators in town might have an opportunity to make suggestions and bid on the work. Each applicant was given an individual hearing and the most attractive combination of design and price was selected and a contract made for the execution of the work. Electric lighting in the decorative scheme was contracted for separately.

The decorating consisted in the use of a huge American flag and enormous wheels and tires made of cardboard and appropriately colored. The wheels were placed at the spaces, lettered with the names of the cars, and were illuminated with tungsten lights. The decorator's contract specified that he would furnish the decorations and put them up, supply the 1,000 extra lights necessary with the requisite connections, meter and so on, and also minor decorations, including coverings for the wiring.

The extra lighting, which included the 1,000 lights used in the decorations, two special electrical displays and outside lighting from the sidewalk to the doors of the armory, was placed on a separate meter and the cost of current was charged directly to the association. The regular lights of the armory were billed to the association at \$10 per night. The cost of the extra lighting was about \$140.

NINTH STEP—Arranging for music, entertainers and speakers.

Very properly, considerable importance

was attached to the furnishing of good music, and notices were placed in the papers asking leaders of musical organizations to make bids. Because the hall was comparatively small an orchestra was engaged, rather than a band, which would have been more effective in a very large building. The men cost \$21 each for the week and the leader \$33, these being union prices. Two-hour sessions were given, one in the afternoon and one in the evening.

By way of injecting some extra entertainment, a good singer was engaged to render popular songs. He was to have been paid \$35, but owing to the exceptionally good work he did this was voluntarily increased to \$50. The singing seemed to make a decided hit with the showgoers. A special feature for Society Night was fancy dancing by a couple engaged for the purpose, and this also proved to be a good move.

Every night in the week was a special night of some sort. They were Opening Night, Boosters' Night, Suburban Night, Society Night, Good Roads Night and Military Night. Speakers were invited for Opening Night and Good Roads Night. Regular admission was 25 cents; on Society Night the price was raised to 50 cents.

TENTH STEP—Ticket and program printing.

Printing is another of the variables. In the present instance the association had printed 1,000 admission tickets, and these were used over and over. They cost \$3. "Guest Tickets" were printed and put up in books of 25; 500 books were made at a cost of \$25 and they were sold to the exhibitors at reduced prices to facilitate their inviting prospects to the show.

An important item of profit was the program. At first the association voted to sell the program rights outright for \$250; but as there were no bidders the secretary took up the program "on the side," guaranteed the association \$250, and went after advertisers. After paying the association's guarantee and all bills he netted \$75. The advertising rates were \$15 for a page, \$10 for half a page, and \$5 for a quarter page. At first only full pages were accepted. The cost of printing the program was \$4 a page and \$20 for the cover. The number of copies printed was 5,000 and the cost \$300. The programs were off the press two days before the show.

ELEVENTH STEP—Police and fire protection. Engaging employees.

Protection was furnished by one policeman and one fireman; the policeman was on duty in the evening only and the fireman both afternoons and evenings. It was found that these men were necessary and that they furnished good service. They were not under salary, but donations were made to the pension

funds of the two organizations as a tangible expression of appreciation.

Two men were employed at \$15 for the week to pick up papers, see that the floors were kept clean and everything spick and span, and to do all sorts of odd jobs around the show. They proved to be fully equal to the task and did so well that they were given \$18 each instead of the \$15 stipulated. The man at the gate who took tickets was selected with care. A man of quick intelligence is necessary for such a position because the rapid flurry of regular tickets, dealers' tickets and passes might easily confuse a slow-witted man.

Another point is that it is important to have a man who is not well known to the people who are likely to attend the show. It is a familiar fact that a great many well-known and prominent people try to get past the ticket-taker without tickets, and if the ticket man knows who they are it makes his job a harder one if he sticks to his guns, and reduces the number of paid admissions if he surrenders to the blandishments of the would-be deadheads. If he is a man who has many local friends there is open another strong possibility of representation without taxation.

The man employed to take tickets was a comparative stranger, and his work was satisfactory from every point of view. He was paid \$18 for his week's work and was presented with a bonus of \$3.

The most difficult position to fill is that of ticket seller, who must be someone of absolute honesty and of unusual intelligence and quickness. A large amount of money is handled and most of it must be handled rapidly and under rather trying conditions. Secretary Donahue took a short cut to the solution of the problem. He took no chances, but persuaded Mrs. Donahue to take the responsibility and went his way with his mind at ease. Mrs. Donahue was not under salary, but the association voted her a present of \$25.

Most of the space in the basement was rented at half the price of main floor space, to dealers in accessories. In fact, besides the magazine men and accessory exhibitors there was no one in the basement except two booths, one occupied by the suffragettes and the other by antis—and they were separated by the full length of the basement.

TWELFTH STEP—THE SHOW.

When the show opened its doors, all accounts for space, program advertising and guest tickets had been closed and the money paid in. When the doors were closed on the last night all bills had been paid and the slate wiped clean.

The attendance on the opening night was heavy—a little too heavy, in fact. Estimates made it about 2,000 people, and they had to be lined up and handled

a good deal to maintain anything approaching comfortable conditions. Tuesday there were about 1,500, Wednesday and Thursday 1,200, and Friday and Saturday 1,000. There were no "lean" days.

THIRTEENTH STEP—Meeting to divide profits and wind up.

Now comes the proof of the wisdom of the association in handling its own show and handling it well. All expenses of every kind were paid out of the money

received from dealers as space rental. This left all the money taken in at the door for profit—clear profit. Three days after the close of the show a special meeting of the stockholders was called by President A. A. Ledermann to divide the profits. Each member received 400 per cent on his investment. This, added to the business done and the prospects gained, was quite sufficient to satisfy the dealers that a well-handled show was even more satisfactory than they had expected.

The Form of Show Contract That Brought Success to the Utica Automobile Trade Association

UTICA AUTOMOBILE TRADE ASSOCIATION

(Incorporated)

Hotel Utica Utica, N. Y.
Utica, N. Y. 1915.

Gentlemen:

Pursuant and subject to the Rules and Regulations prescribed by the Utica Automobile Trade Association and governing the 1915 Automobile Show, to be held at the State Armory, Utica, N. Y., March 8th to 13th inclusive, 1915, we make application for.....spaces, and in said spaces we promise to exhibit the following car or cars..... or in the basement of said Armory we shall take.....space to exhibit the following goods.....

RULES AND REGULATIONS GOVERNING SHOW

1. **PAYMENT FOR SPACE.** All space allotted shall be paid for 50 per cent down and balance on allotment of space.
2. **HOURS OF SHOW.** The exhibition will open each day, except the first Monday, March 8th, at 11 A. M., and remain continually open to 11 P. M.
3. **GASOLINE.** Gasoline shall be removed from all cars prior to entering the Armory, and until leaving the Armory, Sunday, March 14th, cars shall not go out on gasoline power.
4. **LIABILITY OF EXHIBITORS.** The Association is required to give a bond to the State of New York guaranteeing against damage done to Armory by the Show. Therefore, each exhibitor agrees by acceptance of space that any damage done by his individual exhibit shall be paid by him or them in the amount that such damage may cost the Association.
5. **INSURANCE.** If insurance is desired it must be placed by the exhibitor. The Association shall not be held responsible for the safety of exhibits against robbery, fire, accident or any destructive cause.
6. **SIGNS.** The Association will furnish signs to exhibitors indicating article exhibited or name of exhibitor and no other sign or signs shall be allowed.
7. **DECORATIONS.** All decorations shall be fireproof and no special decorations will be allowed without the consent of the management.

8. **PLACING AND REMOVING OF GOODS.** All cars and goods shall be in their proper spaces by five o'clock on the afternoon of Monday, March 8th. No goods shall be removed from the Armory during the week of the Show without the consent of the management. All cars and goods shall be removed by Sunday, March 14th, at noon. No cars or goods shall be sold for delivery during the continuance of the Show.

9. **EXHIBITORS.** All exhibitors shall be furnished with season passes for necessary employees, which shall be non-transferable.

10. **GUEST TICKETS.** These tickets can be secured from the management by paying in advance, and tickets not turned in at the door will be refunded to purchaser.

11. **CHARACTER OF EXHIBITS.** The Association reserves the right to decline any application or prohibit any exhibit. Exhibitors shall have the right to distribute catalogues, souvenirs, and other matter approved by the Association from the space occupied by them, but in no other way.

12. **SUB-LETTING OF SPACE.** No exhibitor will assign, sub-let or apportion the whole or any part of the space allotted, nor exhibit therein any other goods than those sold by the exhibitor in his regular course of business.

13. **ELECTRICITY.** No electrical work will be allowed without the consent of the management and such work must conform to the State Board of Underwriters' laws.

14. **HORNS.** All horns, whether on cars or as an accessory, shall have the reeds removed and no form of alarm will be permitted to be operated.

15. **WATCHMEN.** The Association will provide all necessary watchmen and no other person will be permitted to enter or remain in the building after closing hour.

16. **EMERGENCIES.** All points not covered by these rules are subject to the decision of the Show Manager.

We, the undersigned, do hereby contract for spaces as herein mentioned and agree to all Rules and Regulations governing the Show.

Firm Name.....

Representative.....

Manager.....

UTICA AUTOMOBILE SHOW,
For Utica Automobile Trade Association, Inc.

Dealer's Legal Status

Californian Legally in Possession of a Car is Responsible
for Work Ordered Done On It—Garageman Has
Lien and Can Hold Car

By George F. Kaiser

Editor Motor World:

Who is holding the bag?

A man orders work done on a car which does not belong to him. We do the work and the owner appears and refuses to pay. Can the owner legally take car and what law process must be gone through to get around mechanic's lien?

Fresno, Cal., Oct. 9. Eliot E. Bradley.

Section 3051, at page 1010 of the Supplement to the Notes and General Laws of California, year 1911, entitled "Liens on Personal Property for Services Thereon," provides that

"Every person who, while lawfully in possession of an article of personal property, renders any service to the owner thereof by labor or skill, employed for the protection, improvement and safe-keeping or carriage thereof, has a special lien thereon dependent on possession for the compensation, if any, which is due to him from the owner for such services; a person who makes, alters or repairs any article of personal property at the request of the owner or legal possessor of the property, has a lien on the same for his reasonable charges for the balance due for such work done and materials furnished, and may retain possession of the same until the charges are paid. . . . and keepers of garages for automobiles shall have a lien dependent on possession for their compensation in caring for and safe-keeping such automobiles."

Your right to a lien, under this statute, depends on whether or not the man ordering the work done was legally in possession of the car. If he was properly entitled to possession of it, your lien is good; if he stole the car, your lien is not good.

In order for the owner to recover possession, he would have to start an action to recover a chattel, technically called a "replevin action." In addition to praying for possession of the car, he would probably ask for damages for your wrongful detention of it.

It is well, therefore, to go very carefully in this matter, for if the work was not ordered by an agent of the owner,

or someone who had the right, both possession of the car and the owner's claim for damages may be large enough to exceed the amount of your repair bill.

I just recently heard of an interesting case somewhat along these lines, decided in the District Court of Iowa, for Scott county.

It seemed that a motor car was stolen and, while it was out of the possession of the owner, a speedometer was installed on it. When the owner found his car he drove off without giving up the speedometer. The garageman who had installed the speedometer had the owner arrested and he was convicted of larceny in a justice's court. The district court, however, held that he was not guilty of larceny in driving off in his own car, even if someone had installed a speedometer on it without his knowledge or consent.

**Garageman Is Responsible
For Cars Left in His Care
Must Keep Them and Care for Them
Until Redelivery to Owner**

A short time ago I was told of a case where a motor car owner gave his brother permission to use his car. The brother went to the public garage where the car was stored and took the car out. Neither the garageman nor the garage attendant inquired of the brother what authority he had to use the car. Fortunately for the garageman the brother had been given permission to use the car and it was returned in good order. If, on the other hand, the brother had not had permission to take the car, or some other person had claimed to be the car owner's brother, when in reality he was merely a stranger, the garageman would have paid dearly for his carelessness.

When a car is put in the care and custody of a garageman, he must keep it and care for it until it is re-delivered to the owner. If, through his carelessness, while he has possession of the car, it is stolen or injured, he must pay damages for the loss the owner sustains.

This principal of law is well understood. I do not think that there is any

garageman who does not know about it, yet from time to time a case comes to my notice where a car is allowed to be taken out of a public garage without the garageman attempting to find out if the person taking the car has the owner's permission to do so. It may be a little more trouble to make this investigation each time a brother or a friend of the owner comes along for the car, but in the end it will be worth while, because if it becomes generally known that the garageman is careless in this respect, he will not only lose trade, but sooner or later a car will be stolen, suit will be brought, and he will have to pay for his legal liability in each case is absolute.

**Acceptance of Delayed Car
Waives Claims for Delay**

**Notification of Intention and Refusal to
Accept Gives Remedy**

Editor Motor World:—

I want your opinion regarding a deal put over on me by ——. As you know, they have discontinued the making of the car; months ago I took up the question of selling the car and paid a deposit on one which they did not ship for months. I got tired waiting and also thought there must be something wrong when they did not ship the car and twice I wrote them to send back my deposit. They did not do that but claimed that they were improving the car, etc., and I would be much better satisfied when I got it; they finally shipped it and a few days after I see that they have discontinued it. I would never have taken a chance on it but that I have known of them for years and have done some business with them before, which they knew. The car is of no use to me now and I cannot see that they had any right to ship it at all and I think I am entitled to my money back. I have written since, but got no answer.

Notwithstanding the fact that you wrote and asked that your deposit be returned to you when the car was not shipped at once, you have no present remedy against the manufacturer.

By accepting the car when it was shipped, and honoring the draft drawn on you, you appear to have waived all your rights on account of delay, etc.

If you had notified the company that you would refuse to accept the car because of the unreasonable delay, and had refused to accept it when it was finally shipped, you would be entitled to get your money back.

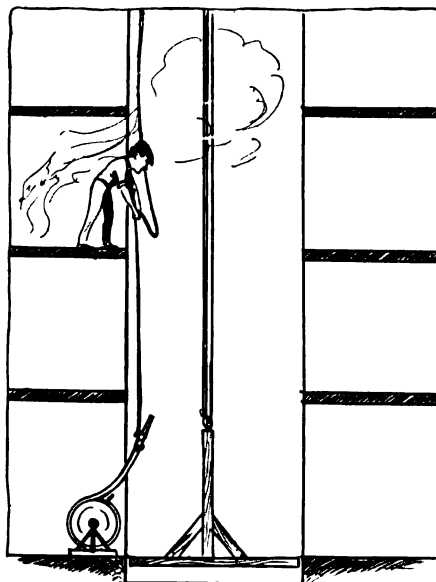
As to the fact that the manufacturer has discontinued making the car, that will avail you nothing.

REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Extending Fire Hose (No. 300)

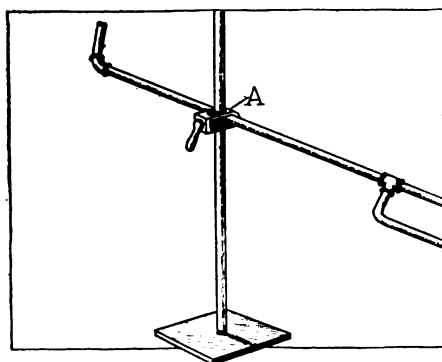
One fire hose may be made to do for all the floors in the garage by placing it on a reel at the bottom of the elevator shaft. A clothes line rope is tied to the nozzle and runs the length of the shaft. When the hose is required at a certain floor it is merely necessary to run to the elevator shaft and pull up the rope while another man turns on the water.—G. O. Reynolds, New Rochelle, N. Y.



(No. 300)
Making one firehose do for all floors

Blow Torch Stand (No. 299)

A simple and convenient stand for a gas blow torch is illustrated herewith. It has a light cast iron base into which is



(No. 299)
Adjustable stand for gas blow-torch

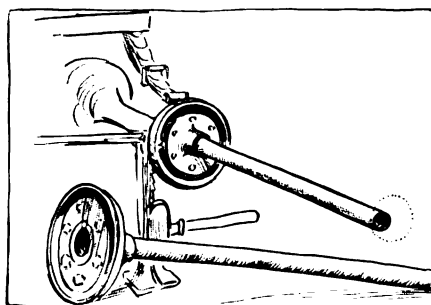
threaded a $\frac{3}{4}$ -in. pipe several feet long. This pipe carries the torch, which is fastened to it by the clamp shown in detail at A. The blow torch is also made of pipe fittings and the flame is controlled by separate valves on the gas and the air.—H. C. Wood, Brock's Garage, Trenton, N. J.

Small Gas Furnace (No. 303)

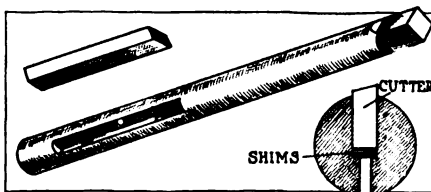
A simple gas furnace can be constructed of sheet iron and gas pipe. The work is rested on the notches at each side.—J. J. Clouse, Parkersburg Mach. Co., Parkersburg, W. Va.

Expanding Reamer (No. 302)

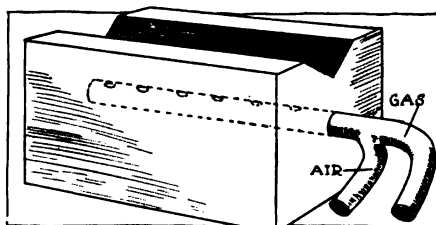
An expanding reamer may be made out of a bar of tool steel with a slot milled in it to hold the single cutting edge, which is a very tight fit in the slot. The reamer is expanded by putting paper shims under the edge, and the knife is removed by inserting a punch through a hole in the back.—John Schutte, Hersch Bros., Elizabeth, N. J.



(No. 301)
Ford rear axle straightening device



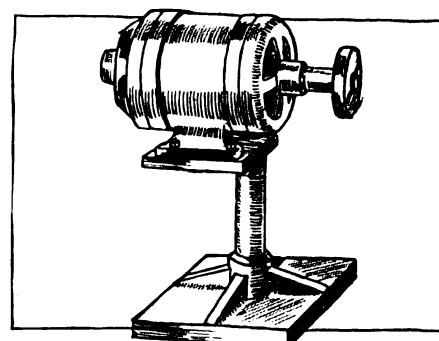
(No. 302)
The simplest form of expanding reamer



(No. 303)
Gas furnace of sheet iron and pipe

Electric Grinder (No. 304)

A bench and lathe grinder are combined in the device shown. The grinder consists of a small motor with a grinding wheel attached to the armature shaft. The motor is supported in the lathe by a bar which goes through the tool post. When not in use this bar fits in a casting on the bench, where the device serves as a bench grinder.—R. Vogel, New Rochelle, N. Y.



(No. 304)
Electric grinder for bench or lathe

Axle Straightener (No. 301)

When a Ford axle shaft becomes bent at the hub it may quickly be straightened by the device shown. An old Ford hub is attached to a heavy piece of pipe several feet long and this is slipped on the bent axle end while the motor is turned over slowly with high gear engaged. The end of the pipe will move in a circle due to the bend and by pulling the pipe back to the axle center the axle should be straightened.—James Folf, Pequot Garage, Mt. Vernon, N. Y.

Garage Hand Truck (No. 305)

A hand truck for moving one end of a wrecked car about the garage is easily made of a pair of iron wheels and the axle from the ordinary baggage smash-er's truck and a wooden bar 10 feet long by 6 inches wide and about 4 inches thick. The bar is fastened to the center of the axle about 3 feet from the end so as to give good leverage for handling.—Parker's Garage, Middletown, Conn.

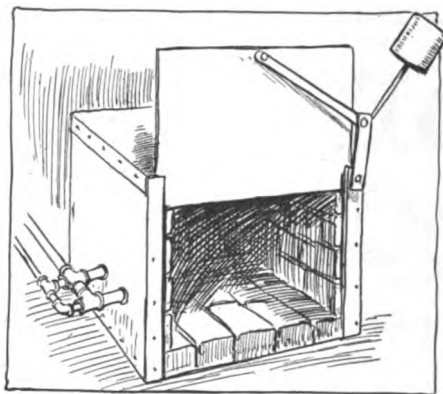
Stock Motors

Page 15

Bench Furnace

(No. 307)

A medium-sized furnace for preheating castings for welding, for melting babbitt, etc., can be made out of some sheet iron, asbestos and firebrick. It can be placed on the work bench and takes up very little room. Gas and compressed air supply the heat. The furnace consists of a box 12 x 20 x 20 in., with a sliding door at the front which is held in either the open or closed position by a counterweight. The box is constructed of $\frac{1}{8}$ -in. steel, lined with sheets of asbestos and then a layer of firebrick. The gas mixture is supplied through two burners made of pieces of drilled pipe as shown. —Chas. E. Hancock, West End Garage & Machine Co., Trenton, N. J.



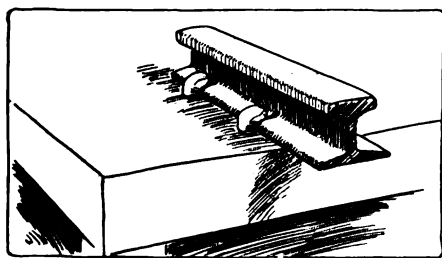
(No. 307)

Simple form of closed furnace

Rail Anvil

(No. 306)

A length of iron rail bolted to the bench so that it extends a few inches over the edge is a very handy shop fixture. The inner end may be used for an anvil



(No. 306)

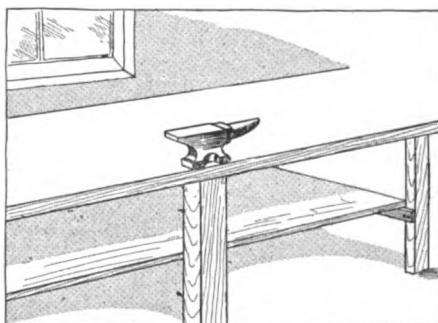
Bench anvil made of old rail

and the outer end is especially useful in straightening fenders and the like.

Preheating Furnace

(No. 310)

The welding of complicated castings requires that they be preheated, and probably the best way to do this is in a brick oven. The dimensions should be about 3 ft. each way and there should be a large door in the front to allow the insertion of large castings. Heat is applied through a gas and air blast at the bottom, there being two $\frac{1}{8}$ -in. gas pipes with a $\frac{1}{4}$ -in. air pipe concentric. It is easy to obtain a cherry red heat in 20 min.—H. C. Sayer, G. O. Reynolds garage, New Rochelle, N. Y.



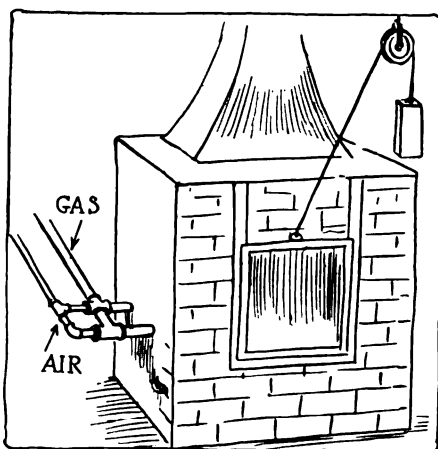
(No. 309)

Convenient bench anvil arrangement

Piston Ring Removal

(No. 308)

Piston rings may be very easily removed by the use of emery cloth, or any other strong fabric. As shown in the drawing, two pieces of cloth are used, one being slipped under the edge of each ring, and then they are folded over and used to expand the ring just enough so that it may be removed.—G. O. Reynolds, New Rochelle, N. Y.



(No. 310)

Furnace for preheating castings

Bench Anvil

(No. 309)

There is no more handy tool about the shop than an anvil, whether the shop is equipped with a forge or not. Usually a vise is used in lieu of an anvil, but it is a poor substitute. For forging work, riveting, straightening rods, etc., the cost

of the anvil will soon be saved by the time saved. The anvil may be attached to a bench with a heavy wooden beam running to the floor to give a firm support. The anvil may be a small one and still be very useful; it is not necessary to have a large one.

Hand Scraper

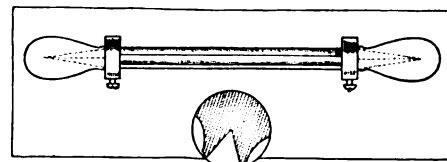
(No. 311)

The purpose of this tool is to simplify the work of scraping a bearing and at the same time shorten the time. The tool has two cutting edges, and is provided with a handle at each end so that it may be used the same as a draw knife. There are two collars, held by set screws, which are adjusted to the length of the bearing.—Albert Pohl, Hersch Bros., Elizabeth, N. J.

Tap Wrench

(No. 312)

An unusual form of tap wrench for seven taps varying in size from $\frac{1}{8}$ to



(No. 311)

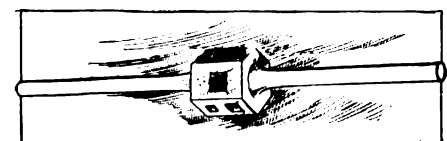
Scraping tool used like drawknife

$\frac{3}{8}$ in. is shown herewith. It is turned out of a solid bar of hexagon tool steel. —John Schutte, Hersch Bros., Elizabeth, N. J.

Removing Bodies

(No. 313)

In removing a body from a car the elevator may be used in lieu of a block and tackle or a crane. The body is first unbolted from the frame and then the



(No. 312)

Wrench that will take 7 tap sizes

car is run on the elevator and carried to the top story, where a suitable tackle is attached to the body and the chassis is lowered away from it on the elevator. After the chassis is removed from the elevator a two-wheeled truck for moving the body around is placed on the elevator and the elevator is run up until the body rests on the truck. The tackle is then removed and the body taken wherever desired. The tackle consists of four $\frac{3}{8}$ -in. cables securely fastened to the roof and which are looped at their lower ends to receive two 4-in. channel members. These members carry the body and are inserted between it and the frame by prying the two apart. The truck is a simple affair made out of an old wagon axle, two 12-in. wooden wheels and some $\frac{1}{4}$ x $1\frac{1}{2}$ -in. stock. The wheels are fitted with steel tires.—O. Spitzer, Prospect Park South Garage, Brooklyn, N. Y.

WIDE-AWAKE MERCHANDISING

WHY DO CUSTOMERS ENTER THIS STORE?

Have You Ever Analyzed the situation carefully?

"Some people seem to think that all one has to do to be a merchant is to rent a store and stock it full of goods," said a successful business man to the Roadman recently.

"They have the idea that the very existence of the store will bring customers to it; they never stop to analyze the various reasons why a customer comes into a store, and does or does not make a purchase. If they did they would change their methods.

"Let us suppose we have an accessory and supply store on Main street and that we are able to determine why each customer comes in.

"No. 1 buys a roll of tire tape—because the store was the nearest one. He is anybody's customer but it is likely that he was favorably impressed with the store and will come back again.

"No. 2 stops to look at the engine-driven tire pump display, glances at the blisters on his hands, comes in and buys

one. The window made that sale undoubtedly.

"No. 3 buys a set of shock absorbers. He came to our store because it was attractive. He had been past it a dozen times in the past two months; each time he was favorably impressed so at the first opportunity he came in.

"No. 4 purchases a box of cotter pins and is ready to walk out when he sees a handy tool with the price mark of 50 cents on it. It was displayed in an open case and the sale was made without any effort on our part.

"No. 5 stops for a 5-gal. can of oil. It is his first visit and he dropped in because the store happened to be the nearest one—he does not care where he buys his oil. The Ford section caught his eye. He slowly traversed all four sides of this counter, and then made a second trip to pick out the things he wanted. The bill came to \$7.85, and as long as he had the purchasing fever it was not hard to sell him a new tire which we saw he needed.

"No. 6 also stops to look at our pump display. He has a pump but he remembers that he needs two new spark plugs. How his mind worked from pumps to spark plugs we don't know, but it did, nevertheless. We remind him of the coming cold weather and show him our

stock. He buys a pair of gauntlets at \$5. This is where the window display was an indirect benefit.

"No. 7 is a bargain hunter, and he tries to get a discount on a tire. We stand firm, however, and show him that our legitimate profit is his guarantee that we will make good if anything should happen to the tire. We are strangers to him, but he puts confidence in us. He reasons that anybody with as neat, clean and business-like a store as we have must be all right.

"In other words," concluded the business man, "you must understand the whys and wherefores that bring each customer to your store, what induces him to make purchases and why he comes back again, and possibly becomes a regular customer. An attractive store both inside and out, a complete stock of good quality, and good salesmanship are the things that count."

Giving Away Time in the Garage

Because a Man Stores With You Is No
Reason for Presenting Him
With Labor

"That's all right," says the mechanic to the owner whose carburetor he has just adjusted, and thus 15 minutes of 75-cent-per-hour time is given away. True, it was only 15 minutes, but it was a loss of nearly 20 cents to the proprietor—a few of such small losses per day might soon make the difference between success and bankruptcy. This fact is not always appreciated.

Whose fault was it? Was the proprietor careless, or was it due to the fact that the customer probably expected the work done gratis because he stored his car there? If the latter, the garageman should face his responsibility squarely and explain to this owner that there are some things outside of the monthly rent which must absolutely be paid for.

An Idea That Will Keep the Customer's Good-will

Cadillac Owners

FREEZING weather will soon be at hand. We suggest that each owner of a Cadillac car replace the water in the circulating system with an anti-freezing solution early enough to prevent freezing.

We suggest the use of an anti-freezing solution composed of 30% glycerine and 70% water by measure. Your attention to this will prevent expensive damage.

Note remarks in your instruction book regarding the water circulating system.

Respectfully,

Detroit-Cadillac-Motor-Car-Co.

1881 Broadway, N. Y. City.

This is a postcard that is sent out each year about this time by the Cadillac New York branch. It is merely a means of keeping closely in touch with Cadillac owners and of ensuring that they obtain satisfaction from their cars. This idea might be used by a garage and sent to the owners of the cars in the garageman's care

Stock Motors

Page 15

Getting Paid in Advance for Service Work

MEMORANDUM OF AGREEMENT

Made this SIXTH day of July 1915 between the

MERCIER GARAGE, UTICA, N. Y.

and Frank Adams of 65 Mohawk St., Utica, N. Y.

This Agreement is binding for one year from date above for Five Dollars.

AGREEMENT.

In consideration of Five Dollars, (\$5.00) the MERCIER GARAGE will tow the above named person's car from a distance of 25 miles to Utica, or will bring Gasoline or Tires, provided the same cannot be had in said territory where car is laid up.

Signed by Owner,

Nº 651

MERCIER GARAGE,

Per Paul Mercier

Frank Adams
65 Mohawk St.
Utica, N. Y.

The Mercier garage uses this form of contract between itself and its customers. Not only does the garage get paid in advance for its work, but the customer is relieved of much worry. This is the brightest kind of wide-awake merchandising

OFFICE MEETINGS WILL BRING RESULTS

Let Even the Office Boy in and Get Down to Cases

For increasing the efficiency of an organization and for effecting that spirit of cooperation that is so desirable, one of the greatest mediums is the office meeting. It may be purely a meeting of the salesmen only or it may be a gathering of the whole organization, from the office boy up.

In such meetings as these matters may be taken up in a very personal way after the newness of the meetings has worn off. Naturally, at first, when the plan is new, individuals will resent having their shortcomings pointed out, but once the plan is understood and it is made plain that it is a case of one for all and all for one, a more direct procedure may be followed.

Find Out Why

If a certain salesman has lost a sale he was expected to make, this sale may be taken up and analyzed with the object of finding out why he failed. Assuredly this makes him—and all the others—a better salesman. This analysis of sales applies particularly to meetings of salesmen only. In meetings of the whole organization there may be taken up such things as greeting people at the salesroom door, courtesy, and co-

operation, and other similar matters.

There is no limit to the work and the results depend upon the work.

CARS NOT SOLD "RIGHT" ARE BAD FOR THE BUSINESS

There is more to selling cars than simply having them moved from the floor and the title to the property passed over to the buyer. If they are not rightly sold the sale has lost much of its value, and the percentage of value depends upon the method.

Much of the value of a sale lies in its quality as a stone in the structure of business. If a car is sold at list price and on its merits, and if the dealer makes a profit that will enable him to render service, the owner should be a satisfied owner; and satisfied customers are the foundation of all business.

But if the car is sold at any old price obtainable, if a big margin is allowed in trading, if the car of a competitor is knocked to make the sale, if the service possibility is destroyed through lack of profit on the sale, if the sole desire of the dealer is to get the car off the floor and make what margin he can, he is building poorly and some day he may find he has erected but a tumbling house of cards.

SAY "I DON'T KNOW"

Customers will be made and not lost by saying, "I don't know," when a car is brought in with some elusive trouble. It is true that many motorists expect the repairman to diagnose any car trou-

ble instantly, and if he is ever frank enough to say he does not know, they think that he is a poor repairman. It should not be hard, however, to explain to these customers that a good repairman any more than a good doctor can not always give a correct diagnosis right off the bat.

BUY GAS BY CAR

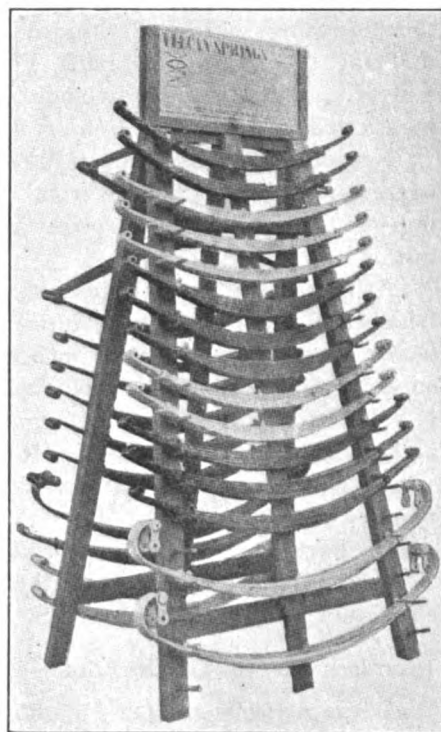
The garageman can profitably buy gasoline by the tank car wherever there is a railroad siding near enough to allow piping the gasoline from the car to a large tank buried near the garage. When bought in such large quantities it can be purchased for at least 1 cent cheaper, and there is also the advantage of being able to purchase the fuel from any oil company instead of being limited to the companies distributing oil in the vicinity.

The cost of the tank, pipe and its installation should not be over \$500, and this amount would be repaid in one year providing only 50,000 gal. were sold.

The installation of such a large tank also gives its owner an opportunity to branch out as a distributor of gasoline and thereby add to his profits.

DISPLAY HELPS FOR THE DEALER

There are many devices which are supplied by accessory manufacturers to their dealers for the better display of merchandise. One is illustrated herewith. Manufacturers who supply these devices are urged to forward photographs or sketches of them.



Ordinarily springs are difficult to stock and almost impossible to display. But with this stand, which is supplied by the Jenkins Mfg. Co., St. Louis, both problems are solved at once. The stand is furnished with an order for 25 or more Vulcan springs

MOTOR WORLD

PUBLISHED EVERY WEDNESDAY

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Wanted—A Leader

ONE reason why many of the smaller trade associations—organizations of dealers and garages in small cities—do not accomplish much is that meetings are not properly conducted. Members do not come to these meetings with something definite in their minds to bring before the meeting. They just drift along and talk half-heartedly on such subjects as may be mentioned.

No good can come from talk of this kind. Knowledge is not worth the proverbial tinker's dam if it is not put to some useful purpose. An idea is worthless unless it is put to work.

At these meetings numbers of things are discussed which are of deep and vital interest to dealers; members express their opinions on how problems may be solved. And yet nothing DEFINITE is done. There is a lot of hemming and hawing but no one gets up and says, "Let us do this; Mr. Jones, will you pledge yourself to work with us; Mr. Black, will you pledge yourself?"

In short, the average small town dealer's organization which could do much if all the dealers put their shoulders to the wheel, LACKS A LEADER.

Promises Do Not Get Results

There must be one person, chosen for his qualifications, who will lead the others. He must have initiative; he must have the courage of his convictions. He must quickly sense the feeling of the meeting on any question and get action on it AT THE MEETING, and not promises of action at some future meeting.

These promises of action at some future meeting

never get anyone anywhere. It is good to investigate thoroughly a question before definite action is taken on it. But what are the meetings for if not to investigate such questions? If a matter is threshed out at a meeting, what excuse can there be for putting off action on it until the next meeting?

These organizations cannot live on promises made to themselves. They must get action—do something—or they will die a natural death.

Facts

"LET'S get at the facts," said a famous executive who had been employed to ferret out the reason for the failure of a business. That was his first move—to get at the facts. He got at the facts and the first year he turned over dividends where there never had been dividends before.

And this is the trouble with a great many businesses. The executives are unable to place their fingers on facts. Their subordinates guess; they do not know. The executive has nothing on which to work.

It should be the duty of every person responsible for the well-being of a business to "get at the facts." He must be sure he is getting facts and not guesses.

How do you know that YOU are getting facts?

False Conclusions

A LITTLE knowledge is a dangerous thing and this is doubly true when some repairmen begin to theorize. Often a mechanic will be led completely astray by reaching a conclusion built up on a false hypothesis. A real danger lies in doing this; for example, one man asserted not long ago that it was his belief that a certain brand of grease had been the cause of several rear axle gears breaking. The evidence supported this conclusion, so he jumped at it; thus the real trouble in each case was not discovered, and so may crop up again. Instances such as this are to be found on every hand and as long as the false conclusion is believed true, just so long must it be before the real cause of the trouble is discovered.

Harness Ideas

AN idea is an elusive thing, and it is of no use as long as it runs wild. It must be corraled. In other words, when a man thinks of a thing, or when he gets a suggestion from someone else, he should not trust to his memory. He should carry a little notebook and jot down such things.

An idea that flashes through one's brain is one of the easiest things in the world to forget, and there is nothing to bring it back once it has gone. The jotting down plan proves this. The list grows amazingly. A man who looks over his list after a week of such recording will exclaim: "Well, by George, there's a bunch of happy thoughts, and I had forgotten that I had thought of them!"

Repairing and Adjusting

Spring Fasteners to Stop

Rattling of the Hood

Rattling of hoods is often due to the insecure fastening of the hood to the frame. Fig. 1 shows a simple fastening that anyone can make. Four machine screws with hexagonal heads are cut as shown. These take the place of the screws that hold the wooden strips on which the hood rests to the frame. Four stiff coil springs are attached to these and these in turn carry the hook and eye fasteners which hold the hood down. These hooks and eyes are preferably cast in brass, and patterns for them may be made by whittling them out of soft wood.

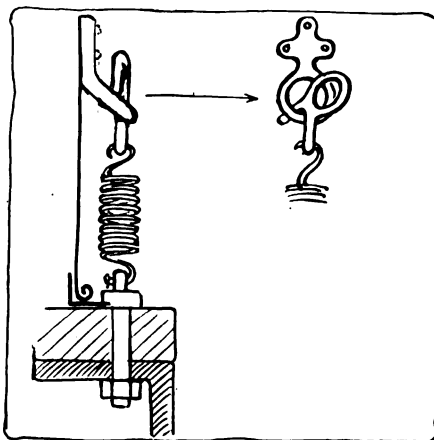


Fig. 1—Sketch showing construction of hood fastener

STEERING ADJUSTMENT

In adjusting a steering gear it is preferable to first turn the wheels to the extreme angle position because the gear is worn least at this point, and if it is adjusted only enough to take up the play when in this position, there will be no danger of it binding. However, if the work is done with the wheels straight ahead, the gear may bind at the extreme positions.

TO REMOVE RUST FROM STEEL

Steel which has been rusted can be cleaned by brushing with a paste compound of $\frac{1}{2}$ ounce potassium cyanide, $\frac{1}{2}$ ounce castile soap, 1 ounce whiting, and water sufficient to form a paste. Afterward the steel should be washed with a solution of $\frac{1}{2}$ ounce potassium cyanide in 2 ounces of water.

The cyanide is one of the deadliest of poisons and should be handled accordingly.

MAKING COIL SPRINGS

The requisites to make coil springs consist of a threaded bolt, the same diameter as that of the required spring, and a supply of steel wire of the requisite gauge and strength.

A suitable bolt is held by the head in the jaws of the vise, but before the vise is tightened one end of the wire is gripped between one of the faces of the bolt head and the vise jaw. The loose portion of the wire is now held firmly in a pair of strong pliers and made to follow the convolutions of the thread, care being taken to see that the wire beds down well into the bottom of the V. The tension of the wire must never be slackened until the winding is complete, and if there should be any tendency for the wire to rise out of the

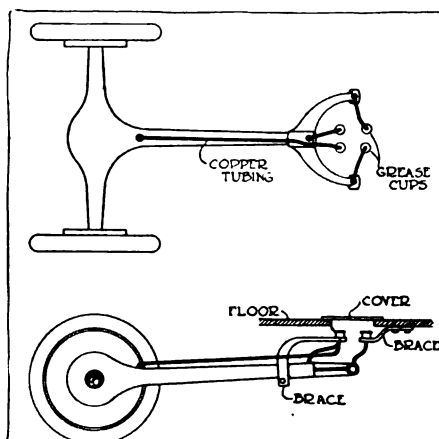


Fig. 2—Diagram showing location and mounting of grease cups

V it should be lightly tapped with a hammer, which will assist in making it take the required form.—Light Car.

[If the bolt is of the size the finished spring is to be the wire will partly uncoil after the winding is finished and the spring will be too large. The bolt should be somewhat smaller than the desired spring diameter to allow for this. If the wire is allowed to slide, with considerable friction, between two pieces of wood as it is wound it will lie in the threads better and will not be marred—Editor.]

QUIETING DISTANCE ROD

Distance rods are prone to develop rattles, and when pinned to a bracket on the frame, as shown in Fig. 3, may easily be quieted by tapering the pin, and the holes in the rod end and bracket so that the pin may be adjusted for wear.

The first step is to ream the bracket and rod end until there is a smooth taper from one end to the other, and then the

rod end is dropped and reamed very slightly larger so that no matter how tight the pin may be drawn it will not bind the rod. Each end of the pin is threaded and the tapered part of the pin extends out past the left side of the bracket so that as wear occurs the pin may be drawn to the right, thus taking up all the lost motion in the bracket holes and all excess lost motion in the end of the rod. A thick washer is placed at each end since the pin cannot be threaded too close to the sides of the bracket without spoiling the taper.

MAKING CUPS ACCESSIBLE

Fig. 2 shows four places where grease cups are often placed on the torque tube, and it is usually the case that all four are difficult to reach. A simple method of making these more accessible is to cut a small door in the tonneau floor and place all four grease cups under it. Each cup connects with the point which it lubricates by a length of tubing.

The two cups which grease the ends of the yoke arm move with the car body and therefore must be supported from the floor, but the two running to the two ends of the torque tube move with the latter and therefore must be supported from it, Fig. 2. Therefore, the former cups may be held in place by a small iron bracket bolted to the floor of the tonneau, and the latter must be carried on a bracket which is clamped around the front of the torque tube.

The cover to the opening in the floor may be supported by screwing projecting iron strips on the under side of the floor on two opposite edges, as shown. The cups should be placed somewhat below the floor level so that the cover may fit into place.—G. B. Cortelyou, New York.

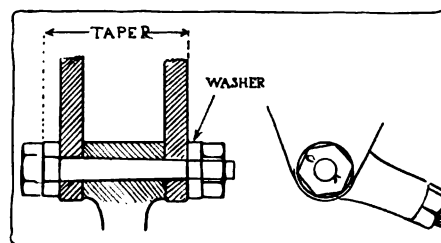


Fig. 3—Method of tapering radius rod pin for easy adjustment

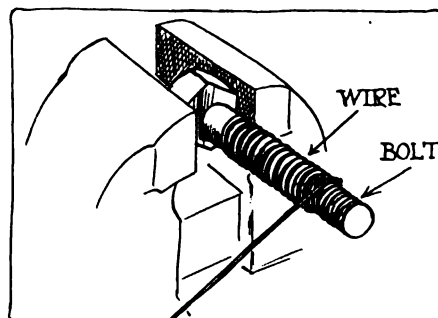


Fig. 4—How spring is made by winding wire around bolt

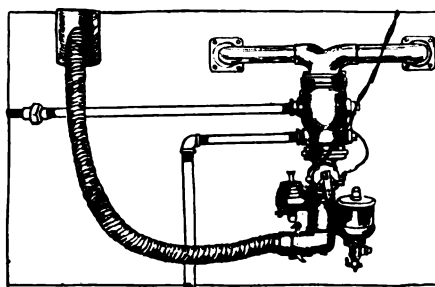


ACCESSORIES & SUPPLIES :

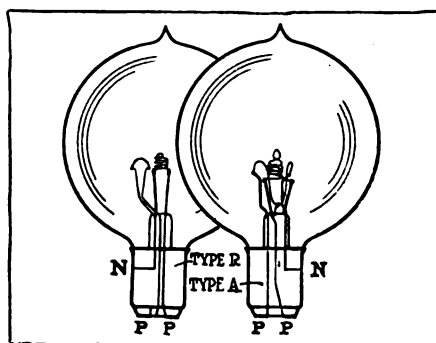
DEPPE VAPORIZER

W. P. Deppe, 127 Duane street, New York. PRICE, \$50.

The gas formed in the carbureter, which is a special Stromberg and is built as a unit with the vaporizer, passes through a chamber whose walls and also an internal bulb are heated by the exhaust. Below the exhaust-heated chamber is a chamber containing a resistance coil heated by electricity. This is immediately over the mixing chamber of the carbureter and is used for heating the gas for starting, before the heat of the exhaust has become available. The coils are designed for a 6-volt current. In the case of a motor with a battery for starting and magneto for running, the idea is to use the heating coil while the



Deppe vaporizer with special carburetor



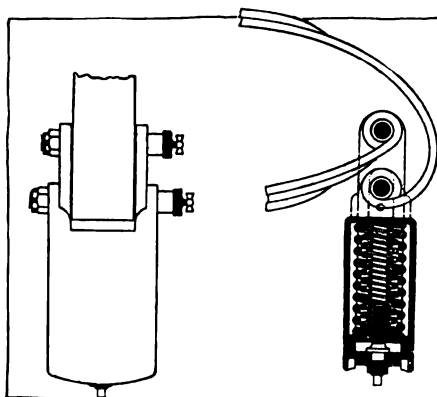
Tulite double filament bulbs

different spring weights are made, so that the combination best suited to any particular car can be used; charts are supplied to dealers showing plainly what combinations of springs to use under given conditions.

SPARK INTENSIFIER

Des Moines Sales & Supply Co., Des Moines. PRICE, 75 cents.

This device is of the spark gap type and has a cylindrical body with an insulated core through which run the conductors; an opening in the core permits the spark gap to be seen. The body of the intensifier has a little bracket at one



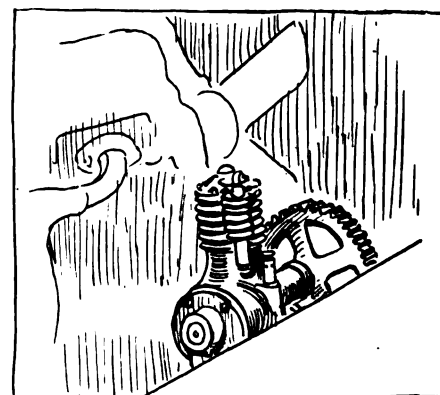
New model Cox shock absorber

end by which it is attached to the terminal of the spark plug and at the other end a binding screw for the high-tension lead. The width of the gap is adjustable from the outside.

TULITE HEADLIGHT BULB

Tulite Auto Bulb Co., Detroit.

The object of this bulb is to provide two degrees of illumination within the lamp itself, which is accomplished by using two filaments, either of which can be switched on. The bulb is made in two types; type R is inserted with the small filament above the larger, projecting the light on the roadway at short range, while type A has the small filament mostly surrounded by the larger so that the diffused light covers a very large area. In the standard bulb the



Purair pump in place on Ford motor

battery current is on and switch the coil off when the magneto current is switched on.

COX SHOCK ABSORBER

Cox Brass Mfg. Co., Albany, N. Y. PRICE, \$10 per set.

This shock absorber is still made with three coiled springs nested and adjustable from the bottom by means of a threaded rod with a locking nut to hold it in position. The head and cylinder are now made in one piece to avoid the possibility of weakening at joints. All the bearings have machine fits and the sliding rods are fitted with fiber bushings to make them quiet. The slide bearings have been increased in length to 5½ in. The piston or plunger is 2 x ¾ in. Fittings are made for spring widths of 1¾, 2, 2¼ and 2½ in., and shackle bolts, which are drilled and fitted with grease cups, are made in various sizes. Five

candlepowers of the filaments are 4 and 20, but other intensities and combinations can be supplied to suit the special requirements.

PURAIR POWER TIRE PUMP

Hert Mfg. Co., Indianapolis. PRICE, Ford model, \$8.

The makers state that this pump can be attached by anyone in about 15 minutes; that the radiator does not have to be removed, no machine work is needed and the device does not prevent or interfere with the use of an electric starter. A new timer cover is supplied with the pump; this is put in place of the old one and the pump drive gear screwed to the end of the camshaft and the pump itself attached to the engine crankcase by means of two screws. A filter in the pump removes all lubricating oil from the air.

GEORGE ROLLER BEARING

George Automatic Roller Bearing Co., Cincinnati.

This is a roller bearing of the conical type, the races being tapered and the rollers also. Its feature is that the ends of the rollers are carried on balls instead of the usual cages, the large ends of the rollers being mounted on large balls and the small ends on the smaller balls. The roller ends are of a form which acts with the form of the ball grooves in the races to give the balls a true rolling contact without sliding movement. One of the claims made for the bearing is that the balls permit the rollers to automatically adjust themselves to compensate for slight variations in size and also to neutralize the effect of slight inaccuracies in the machining of mountings. Thus the slight departures from a high degree of accuracy which are difficult and expensive to avoid are claimed to be made harmless. When a bearing is mounted and tightened in place there is a slight wedging action which causes the rollers to be pushed up or down sufficiently to bring them all into proper bearing contact with the cones; the pressure is equalized by the balls, which adjust themselves and at the same time the rollers. To take a bearing apart the rollers are pushed apart and one of the balls removed through a small opening provided for the purpose; a second ball is then easily removed and the rollers can be canted and taken out.

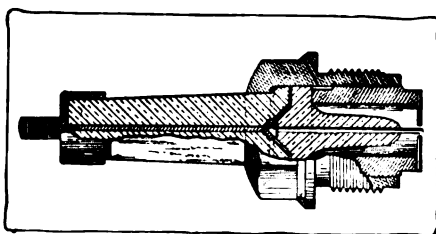
NEW-SPEED CARBURETER

New-Speed Carbureter Co., San Francisco. PRICE, from \$20 for $\frac{3}{4}$ in. to \$45 for 2 in.

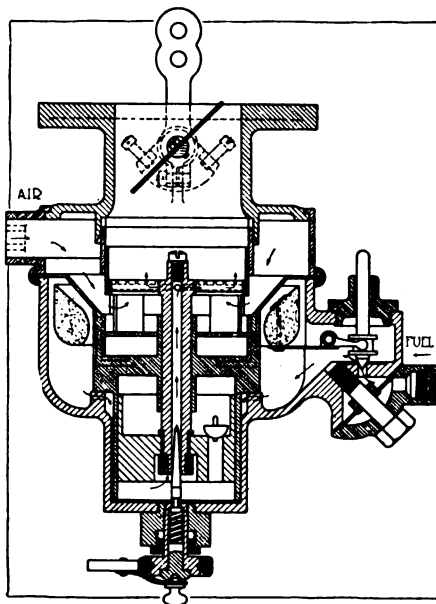
This is a carbureter in which the control is automatically effected by a floating air valve which is raised by the suction of the motor. This valve, called the elevator, is in the neck of the carbureter and has ports cut in the sides, which correspond with ports in the passage in which the elevator travels. Under normal conditions when the motor is idling the elevator is in its lowest position, which closes all ports and only allows fuel to enter through a simple passage. Crosswise in the top of the elevator is a row of jets.

A piston is in a compartment in the center of the float chamber directly beneath the elevator and attached thereto by a fuel stem. The piston being attached to the fuel elevator travels at the same distance as the latter and is of sufficient weight to insure proper balance and proper closing of the fuel elevator. It is through this fuel stem that the gasoline travels to the row of jets.

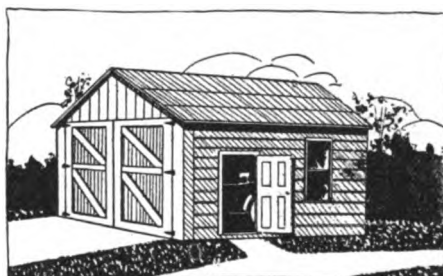
The amount of fuel flow is governed by a metering pin mounted vertically beneath the fuel stem. As the elevator rises, carrying with it the stem, the taper in the pin governs the amount of fuel



Sprung spark plug with renewable points



New-Speed automatic carburetor



Waco medium sized portable garage

admitted. The greater the suction the higher the floating valve lifts, and the greater the amount of fuel and air. Since the meters are all straight tapers, it is only necessary to put the right taper pin for a given motor and to adjust it properly for idling. After this, it is claimed that it will be automatically correct for every other speed.

WACO PORTABLE GARAGES

Wabash Automobile Co., 1311 Wabash avenue, Chicago. PRICE, \$65.

The garage shown in the accompanying illustration is one of a number manufactured by this concern and is 9 x 16, of Georgia pine or steel sheeting with felt, rubberoid or imitation gravel roofing. The units are interchangeable as to position, so that doors and windows can be placed wherever desired. Regular equipment includes one double door, one single door and a window. Flooring is not included in the price, but may be had at an extra charge of 10 cents per square foot for cement and 8 cents for wood. Other sizes made range from the Ford types at \$55 to a 16 x 18 building at \$120.

LIGHT PISTONS FOR FORDS

McQuay-Norris Mfg. Co., St. Louis. PRICE, set of 4 pistons with Leak-Proof rings fitted, \$30.

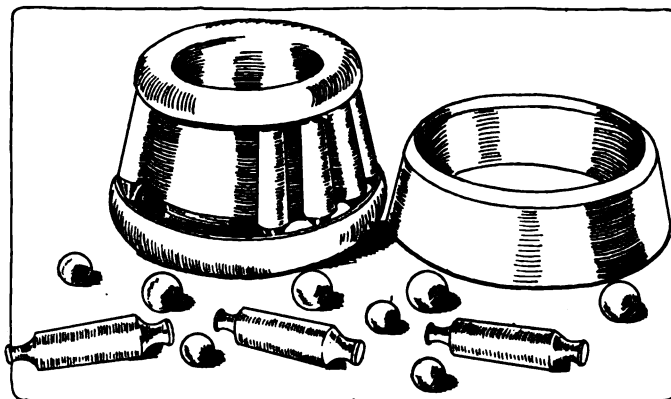
Pistons made either for standard Ford cylinders or for cylinders that have been rebored .031 oversize are supplied cast of lynite, an aluminum alloy which, the makers state, is lighter than pure aluminum, stronger than cast iron, and is a much better conductor of heat than cast iron. The pistons weigh about a third of the weight of cast iron pistons of the same design. They are supplied fitted with Leak-Proof rings.

SPRUNG SPARK PLUG

A Sprung, E. E., 126 W. 118th street, New York.

The feature of this plug is that there is a recess at the bottom in which is inserted a bushing containing the insulated terminal electrode, the center of which makes firm contact with the main section. The bushing also carries the second electrode, which is grounded to the shell. The advantage claimed for this construction is that the sparking points can readily be removed when burned or worn and new ones inserted. The makers state that the breakage of the porcelain through heat is prevented by the novel method of putting the plug together.

George taper roller bearing with ball-bearing rollers. Balls permit sufficient movement to equalize pressures on rollers and neutralize inaccuracies in mounting



The RETAIL NEWS

EAST

Adrian H. Boyce, Seneca Falls, N. Y., is completing a \$30,000 garage, three stories high.

Joseph M. Dey, Kenvil, N. J., will build a garage near the Central station.

H. Geishelmer will build a garage three stories high at Ellis avenue and Clinton street, Irvington, N. J. The cost will be about \$10,000.

Bovard Bros. will occupy, about December 1, a two-story and basement garage being erected at 109-117 State street, Ithaca, N. Y., to be known as the Security Garage. It will be about 132 x 132.

The Bailey Garage Co., Ithaca, N. Y., is building a garage adjoining its present location. The new garage will be fireproof and have two large show windows.

Morris Segall has leased for 10 years a two-story fireproof garage, which will be built at 438-454 West 18th street, New York, to accommodate 250 trucks. The building will be ready for occupancy April 1. The rental involved is \$160,000.

Wm. Conway, Philadelphia, is having a brick garage, 52 x 146 ft., built on the east side of 59th street, south of Locust, at a cost of \$10,000.

The West End Garage, 1131-41 21st street, N. W., Washington, D. C., is occupying new quarters. The garage has a floor space of 10,000 sq. ft. without posts and can accommodate about 75 cars.

The Hartford Motor Car Co.'s new factory building in the rear of 410 Main street, Hartford, Conn., is completed and will soon be occupied. The company will occupy one floor as a Dodge service station, the Hartford Auto Top Co. one floor and the Walker & Barkman Mfg. Co. one floor for the manufacture of Pope-Hartford parts.

M. Herman & Son, Hartford, Conn., are building a one story garage, 52 x 100 ft., at a cost of \$15,000.

Edward Cunningham, Philadelphia, will build a garage, 92 x 106 ft., at 13th and Sanson streets. The estimated cost is \$8,000.

J. R. Williston will build a garage at Seabright, N. J.

The Carlisle Motor Supply Co. has opened a store at 22 East High street, Carlisle, Pa. Accessories and supplies are handled.

L. H. Farnham, proprietor of Farnham's Garage at Upham's Corner, Boston, has approved plans to build an 80-ft. addition to his building in the front that will double its capacity.

B. L. Handleman has awarded the contract for a garage at the corner of Keene and Grafton streets, Worcester, Mass. It will be one story, of brick and concrete, with an area of 10,000 sq. ft., and cost \$14,000.

Walter H. Doolittle has sold his interest in the Turners Falls Garage, Turners Falls, Mass., to his brother, Oler Doolittle.

W. C. Landon & Co. has bought the garage business of Robert V. Allen, Rutland, Vt., at 34 Evelyn street, and placed Lee Houghton in charge. The company has taken the agency for the Maxwell.

The Smith Auto Sales Co., Lebanon, N. H., has just completed a garage and service station for Buick cars.

Thomas F. Fahey and James H. Green, Salem, Mass., have bought the North Reading, Mass., garage, located at the corner of

Lowell and Main streets in the latter town.

David Virr has taken over the Red Arrow Garage on Lowell street, Methuen, Mass. He has been employed in the garage since it was opened three years ago.

W. A. Wright, St. Johnsbury, Vt., has purchased the Edson Garage at Rutland, and will operate it in connection with his big garage in the former city.

The Dunn-Semmons Co., distributor of Jackson and National cars at Springfield, Mass., has taken over the Hampden Garage at 64 Taylor street for a service station.

I. E. Gray, agent for the Hudson and Overland cars at Concord, Mass., has just opened a new garage on North Main street.

Elmer Gray has sold out to Millard Watson his interest in the Gray & Watson garage at Colebrook, N. H.

Peter F. Jacques will build a public garage on the corner lot between Hall and Main streets at Farnumsville, Mass.

The Yoerg Tire & Rubber Co., Holyoke, Mass., has ordered plans prepared for a garage to be erected on Chestnut street.

C. H. Green will soon move into a new garage on Lewis street, Lynn, Mass.

Charles B. Yule, Quincy, Mass., has received a permit to erect a public garage at the corner of North and Washington streets.

J. C. Green, Madison avenue and West Lawrence streets, Albany, has opened a garage. It is a one-story brick building and will care for about 80 cars. Henry MacKenstry is the manager.

Breslin's Garage, Quail street and Myrtle avenue, Albany, is being overhauled and enlarged. The machine shops will be moved upstairs to give added space.

Roger M. Spencer, 1260 Main street, Hartford, Conn., has leased a garage in the rear of 30 Wells street. He removed to the new location November 1.

Harry Starkle, Hartford, Conn., Chevrolet dealer, will soon remove from the Palace Automobile station to 1260 Main street. The new quarters have been completely renovated and the showroom extended over the sidewalk about 6 ft.

M. J. Bliss, Cole distributor, 67 Mulberry street, Hartford, Conn., has put in a complete stock of accessories.

Charles E. Miller, Hartford, Conn., has removed to 329 Trumbull street, in the new Stone building.

The Wright Motor Car Co., Huntington, W. Va., will build a garage, a feature of which will be a well-equipped repairshop.

W. C. Barnard, Watertown, Mass., will build a one-story garage at an estimated cost of \$10,000.

MIDDLE WEST

B. F. Crisman, owner of the Midway Garage in South Taft, Mich., has purchased the Bewker garage in North Taft and will operate it after making improvements and adding machine shop equipment.

The Waterloo Overland Co., Waterloo, Ia., will erect a four-story garage at East Fourth and Franklin streets, at an approximate cost of \$100,000. Construction will be started in the spring.

F. M. Westcott has started the erection of an "Auto Inn" on the Bay Shore Road, a mile and a half below Presque Isle. It will be completed about December 15.

L. E. Huddle has opened a garage on West Main street, Lancaster, O. The inauguration was made the occasion of a reception and music was furnished by a band. The Buick and Cadillac are handled.

George W. Feters has opened an automobile painting business at 96 North Seventeenth street, Columbus. He also will do repair work.

E. H. Huffman, 114 East Town street, Columbus, has opened an agency for the sale of commercial bodies for Ford cars.

The Toledo Tire & Supply Co. has leased a store on Madison avenue which has been connected with the former room by an archway. The basements of the two store rooms have also been connected.

The Park Auto Service Co., Toledo, has been incorporated with a capital of \$5,000 to buy, sell, store, and repair automobiles. The incorporators are W. P. Clampitt, M. V. Emerman, Wm. Gibson, W. D. Cole and C. Griffin.

The Peirce Supply Co., Cleveland, has been incorporated with a capital of \$5,000 to manufacture and deal in automobiles. The incorporators are W. E. Crawford, James A. McKay, I. Rose, Max Painter and G. Fowler.

The Auto Repair and Machine Co., Toledo, has been incorporated with a capital of \$5,000 to buy, sell, and deal in automobiles and accessories. The incorporators are Mrs. C. A. Van Dusen, Miss Dorothy Van Dusen, Chas. A. Van Dusen, Sr., Chas. S. Van Dusen, Jr., and X. D. Johnson.

The Buckeye Tire and Supply Co., Columbus, has been incorporated with a capital of \$6,000 to buy, sell, trade, exchange and lease automobiles. The incorporators are Harry C. Dunning, W. A. Dorsey, C. S. Sifford, Walter E. S. Bock and G. H. Bangham.

William Vanhorn, Sonoma, Mich., has taken over the Ford agency formerly handled by M. Rily, of Climax, Mich.

Leslie Broad, Alpena, Mich., is having salesrooms and offices equipped in the Eddy block, having taken the agency for the Overland.

Vern Goldsmith and Cap Frace, Charlotte, Mich., have opened a garage next to the Masonic Temple. Part of it is used as a salesroom by Lawrence Robinson, Overland agent, and the other part as a garage and accessory department for Ford cars especially.

The E. A. Bowman Co., 844 Woodward avenue, Detroit, accessory dealer, has greatly enlarged its place of business.

A Studebaker factory branch has been opened at Saginaw, Mich., at 521-523 Genesee avenue. The building has been remodeled and redecorated. A garage and service station will be operated in connection. J. O. Andrews, of Detroit, is in charge.

Albert Binkle will erect a garage in Harbor Beach, Mich.

George Burke, Grayling, Mich., Ford dealer for Crawford and northern Roscommon counties, has opened a salesroom and garage.

Caspar Glenn has disposed of his interest in the Stockbridge Garage, Stockbridge, Mich.

Glenn A. Rickenbaugh will open a garage in Hudson, Mich. He was formerly in charge of the service department of the Oakland Motor Car Co.

R. H. Smith is now owner of the City Garage, Jackson, Mich. He will continue to handle the Alter car.

O. C. Kemp & Son, Greenville, Mich., have opened a garage and are handling the Overland, Oakland and Studebaker.

The Grand Ledge Machine Co., Grand Ledge, Mich., has been sold to Grant Mead

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Five Advantages of the Eight

Greater Commercial Possibilities, Structural Economy, Capability and Durability, Says Cole Engineer

THE eight-cylinder motor has five outstanding advantages, according to Charles S. Crawford, chief engineer, Cole Motor Car Co., Detroit, Mich., who explained what these are in a paper presented before the Indianapolis section of the Society of Automobile Engineers, October 29. They are as follows: Wider and more logical commercial possibilities; greater structural economy; the necessary ability and flexibility; higher thermal efficiency, greater durability, and superior simplicity.

He concludes that, "The eight, with its small per cent of increase in the number of parts, brings with it a greater proportionate increase in adaptability and performance, while in the twin-six a further increase in the number of cylinders adds only slight advantages in one respect and brings disadvantages in the other that considerably outweighs them. In other words, the eight is not the result of an arbitrary multiplication of cylinders backed by sales argument but not supported by the best engineering judgment. It represents an actual advance in the natural process of progression in engine building and cylinder co-ordination, and for that reason has been able to prove its superiority over any other type which has been produced thus far."

The principal arguments supporting these conclusions are:

The eight-cylinder engine should not be regarded as a twin. It is a well-rounded mechanism of eight co-ordinating cylinders possessing characteristics different than those of any other type of engine that has preceded it.

Principle Is Sound

In discussing the eight I have taken three things into account: First, that the principle of the eight-cylinder V-type engine, as it is now applied, is sound from an engineering standpoint. Second, that it represents a standard of commercial value attained by no other type. Third, that it is a product which, as best proof of its practicability, during its first year of active and continuous service, has won for itself a place in the forefront of the industry by sheer performance.

The appearance of the multiple cylinder engines may be attributed to several things: First, to the general tendency to high-speed, high-efficiency engines with limited capacity of individual cylinders, the dimensions of which are confined within the limits to which it is possible to obtain a maximum efficiency from one cylinder of given displacement. Second, the need for smoother running engines for the larger types of cars. Third, a means of giving to the purchaser better car performance at a lesser cost, by the opportunity the eight construction offers to reduce the manufacturing cost. Last, the advantages the construction affords to realize certain ideals which with other types of engines we were unable to attain.

It is generally recognized that the useful cylinder bores vary between 3 in. and 3½ in., while the stroke may vary between the ratio of 1¼ and 1½ to one. In support of this contention we refer to the performances of European engines where there are

respectively examples of the smallest and largest bores, each with the same piston displacement and with a correspondingly large and small stroke-bore ratio, yet both engines giving equally satisfactory performance.

To proceed, however, we can see that on this basis we would define the various types of engines as having a specified sphere of usefulness in so far as the relation of car-size to cylinder displacement is concerned. But it is not the mere matter of cylinders alone. It is more truly the commercially correct numerical combination that will afford the greatest capacity and performance with a definite relation to the other factors upon which the proposition depends. These may be exemplified as follows:

The attainment of the ideal engine for the required displacement must have a maximum available torque; a frequency of impulse sufficient to render the engine smooth (the torque frequency being that applied to the road wheels), and a speed range that covers these desirabilities without excess, consistent with the standard of merit, as we have chosen to designate the relative value.

Now the eight, as we have it, answers all of these requirements, and, as a commercial product, compared with its nearest neighbor—the six, of equal piston displacement—has the advantage in initial cost—a greater degree of merit in this respect to begin with.

Simplicity a Big Feature

From the standpoint of simplicity, it achieves a standard that places it ahead of other multiple-cylinder types.

From the point of durability, the eight is better because of the superior rigidity which it possesses, and this is conducive to longer life. I might point out here that the internal rigidity, as found in the eight, is a most essential factor. And remember that the considerations of rigidity are quite distinct from those of actual strength.

The compactness of the eight-cylinder engine is greater by far than that of the six. It occupies much less space in a chassis of given length. This affords a great deal more room for the body. It can be made large and commodious without excessive overhanging, which is bound to handicap the performance of the car.

The fundamental requirements to attain the desired "range of ability, smoothness and minimum noise" can now be determined. These, as you know, were defined as the essentials of the ultimate motor car.

The required range of ability, which in substance means the capacity of the engine to do the ordinary thing and to answer everyday requirements, is that which can be utilized in practice, and a speed range that will give a car from 2 to 60 m. p. h. in high gear is, as we all know, ample.

The desirable torque must be maintained throughout the useful speed range, and this the eight-cylinder engine does.

This range of capacity depends upon the ability to run the engine to reasonably high speed without detrimental vibration and to arrange the gear ratio in relation to the highest speed that can be developed with a maintenance of torque.

50 M. P. H. in 20-25 Seconds

To illustrate this: If an engine running at 2,600 r. p. m. can, with a given gear ratio, make a car go 60 m. p. h., then the necessary size or displacement of the engine can be determined by the torque necessary to reach this speed in a given time, or with a certain acceleration, say, of from 10 to 50 m. p. h. in 20 to 25 sec.

This will then utilize to advantage all the power the engine can develop at its highest useful speed, which is limited by the volumetric efficiency at the said speed, or the ability to maintain a proportional torque. To attain this result is simply a matter of design and the proper development of the power plant.

Where the eight scores in generating increased torque at lower speeds is in its undoubted ability to distribute the mixture to better advantage. In support of this contention a layout of the manifolds to scale is shown in Fig. 2, which presents clearly the equidistant port locations and the comparatively short distance of each from the carburetor.

The importance of limiting the manifold lengths to obtain good volumetric efficiency and torque at the lower speeds being obvious, the ability of the eight's construction to give this condition stands out prominently and is thus seen to be more pronounced than in any other type of multiple-cylinder engine.

It will be observed that with a greater number of cylinders it would be harder to obtain equality of cylinder performance. Particularly is this true where the individual cylinder displacement is very small, because the little variations which occur either from the differences in valve timing or tappet clearances and manifold designs will have

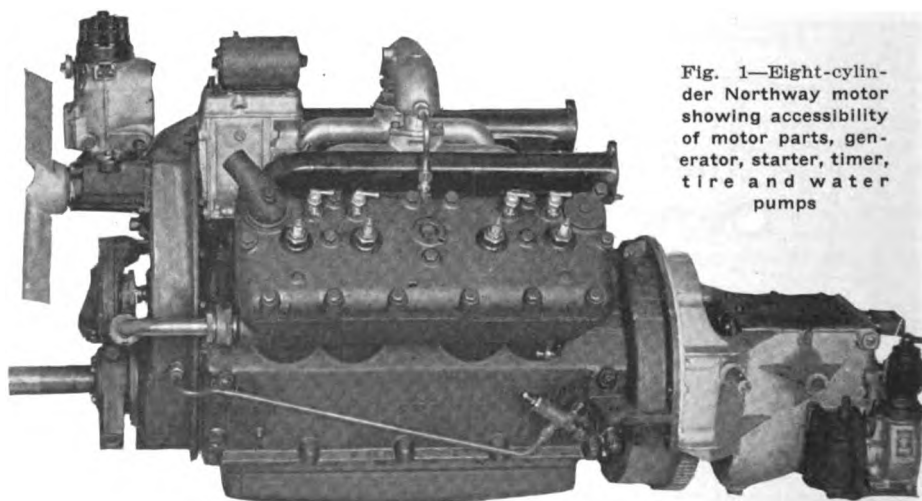


Fig. 1—Eight-cylinder Northway motor showing accessibility of motor parts, generator, starter, timer, tire and water pumps

a greater effect than with the same variations on a larger cylinder displacement.

In respect to rigidity the eight is most certainly superior to any other combination. The crankshaft is exceptionally stiff and although the explosive forces in the cylinder of $3\frac{1}{2}$ -in. bore exceed those in a 3-in. bore, the great reduction in length and lesser distance between the supports give greater rigidity and consequently less deflection than does a longer shaft even though the pressure imposed upon it be somewhat smaller.

In the eight-cylinder Colt-Northway type engine the shaft is $2\frac{1}{4}$ in. in diameter and the length between center of supports $10\frac{1}{2}$ in.

The crankcase, common to any type of engine if it is exceptionally long, is subject to the same criticism, and for that reason the eight in this respect is all that could be desired because the case is short.

Actual performance proves the importance of this stiffness, characteristic of the eight, to be an essential to durability and smoothness in the operation of the engine.

While it is pointed out that the decreased length of the shaft of the twin-six would be a factor tending to reduce this periodic vibration it is logical that the critical period in the twin-six will be just as pronounced. By shortening the shaft the periodicity or natural period of the shaft will be higher. But the explosive impulses are also closer together. In other words the torsional frequency is higher and since both the natural period and the explosive impulses are higher, the time when the periods will coincide and give a critical vibration will be the same irrespective of the fact that with a light piston and small explosive pressure there will be a decreased twist on the shaft.

If the natural period were of a higher frequency and the torsional period due to impulse had remained as in the six, it is possible that the time of synchronism would not have been within the speed range of the engine. This is precisely the condition that an effort was made to attain in the six by using a big, heavy shaft. Therefore, the same difficulties and disadvantages can be argued against the twin-six as are characteristic of the six, since many of these peculiarities recur in the twin-six. They are not characteristic, however, of the eight-cylinder engine.

Noise Due to Contact

By the term "minimum noise" I mean the ability of the mechanism to operate without objectionable sound. Previously I have dealt with the vibration and the noise resulting therefrom, and under this heading we will consider the noise resulting from the parts of the mechanism which come together with metallic contact due to the clearances that must naturally exist.

Since in any engine the clearances are practically the same, the noise therefrom will be substantially the same per contact. Thus, the multiplication of the parts in operation will increase the noise in the same proportion as such multiplication occurs.

In a recent criticism of the eight it was assumed that the accessories must, of necessity, be placed in a so-called conventional position, and because the particular construction of the eight did not permit with advantage the placing of the accessories in that position, it was considered distinctly disadvantageous.

Refer to Fig. 1, showing the general layout of a typical V-type engine. It will be observed that, though the position of the accessories is not what is purported to be the conventional one, distinct advantages are to be gained from the positions in which these accessories are placed. The position of the water pump is ideal, for it simplifies to a considerable degree the water-piping in distributing the water to each block.

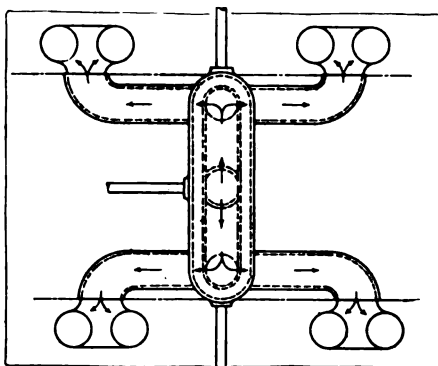


Fig. 2—Diagram of manifold showing that the path to each cylinder is the same distance from the carburetor

Because of the shortness of the cylinder block and the detachable head, which acts as a baffle, and the fact that the connecting passages are proportioned so as to give correct circulation, even temperature throughout the cylinder block is assured.

To the accessibility of the valve mechanism great importance is attached. Given a clear valve alley, as in the case of the eight-cylinder V-type engine in question, it is seen that the greater amount of free space with a 90-degree construction enables more easy manipulation of tools than with 60-degree construction of the twin-six.

The frame width is no greater than would be necessary with any other type of engine and the turning radius is, therefore, just as small, consistent with a 126-in. wheelbase, as would be possible with any other type of engine.

The steering gear, too, offers no trouble and is equally as accessible in the eight as in the six or twin-six. As a matter of fact, the location and assembly is identical to that found in our previous models, and they were located in the chassis, according to the present standard practice.

Obviously incorrect, also, is the criticism that "In the best workouts the assembling and dis-assembling of the steering gear is a very difficult matter and, in most cases, at least it is necessary to remove the body and partially remove the motor in order to get the steering gear out." The position of the steering gear is fixed by the position of the wheel in its relation to the front seat and a desirable angle. This brings the gear into a definite position on the chassis and at this point the space available is just as great in the eight as it would be either in a six or twin-six engine the stroke of the engine in each case being the same. Since this would determine the size of the crank-

case it is this dimension which determines the space between the crankcase and the frame into which the steering gear fits.

Randolph Trailers in Four Sizes

JONESVILLE, MICH., Oct. 28—The Randolph auto-trailer is made by H. C. Randolph, successor to the Standard Auto Trailer Truck Co. It sells for \$45 and upwards, according to load capacity, steel or rubber tires and the kind of axle.

There is only one model, G, but it is made in four different sizes as far as loading capacity is concerned. The trailer with a 1,000 lb. capacity has $1\frac{1}{2}$ in. steel or rubber tires, the one with a capacity of 1,300 lb. has $1\frac{1}{4}$ in. steel or rubber tires; with a load capacity of 1,600 lb. the tires are $1\frac{3}{8}$ in. steel or rubber, and they are $1\frac{1}{2}$ in. rubber or steel for the trailer carrying 2,500 lb. There are two series, the first one having a D. C. axle and the second series a Timken.

The body is 6 ft. 10 in. long, 38 in. wide and 7 in. deep. The net weight of the trailer is 350 lb. and 425 lb. when ready for shipment, says the manufacturer.

The prices to dealers are as follows:

MODEL G, D. C. AXLE

Steel Tires—		
	Capacity	Price
$1\frac{1}{2}$	1,000 lbs.	\$37.65
$1\frac{1}{4}$	1,300 lbs.	41.50
$1\frac{3}{8}$	1,600 lbs.	47.00
$1\frac{1}{2}$	2,500 lbs.	53.00

Rubber Tires—		
	Capacity	Price
$1\frac{1}{2}$	1,000 lbs.	46.65
$1\frac{1}{4}$	1,300 lbs.	52.10
$1\frac{3}{8}$	1,600 lbs.	60.75
$1\frac{1}{2}$	2,500 lbs.	68.70

MODEL G, TIMKEN AXLE

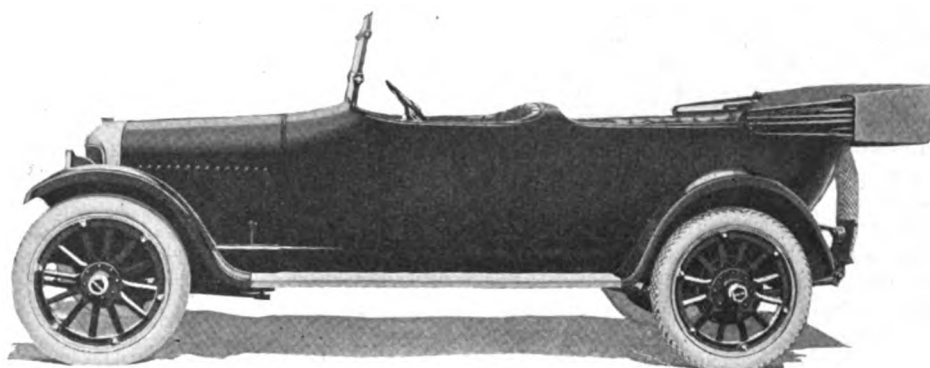
Steel Tires—		
	Capacity	Price
$1\frac{1}{2}$	1,000 lbs.	53.80
$1\frac{1}{4}$	1,300 lbs.	61.00
$1\frac{3}{8}$	1,600 lbs.	71.80
$1\frac{1}{2}$	2,500 lbs.	83.10

Rubber Tires—		
	Capacity	Price
$1\frac{1}{2}$	1,000 lbs.	62.80
$1\frac{1}{4}$	1,300 lbs.	71.70
$1\frac{3}{8}$	1,600 lbs.	85.50
$1\frac{1}{2}$	2,500 lbs.	98.75

EXTRAS

Fenders or mud guards.....	\$8.00
Covered top, oiled and painted, with bent oak bows, with side and back curtains	25.00
Stock rack	12.00
Stakes with sideboards on regular bodies	8.00

The Newest Type Oakland—An Eight at \$1,585



This is the latest type Oakland, an eight with $3\frac{1}{2} \times 4\frac{1}{2}$ motor and 127-in. wheelbase, selling for \$1,585. Through an oversight, a wrong cut appeared in a limited number of last week's edition of Motor World. This illustration shows the raked windshield, the ultra-smooth lines and the double cowl which distinguish this newest Oakland

Dallas Show Draws 200,000 First Nine Days

Many Farmer Prospects in Throng—50,000 Stop to Ask Questions About Cars—\$1,000,000 Worth Displayed

DALLAS, Nov. 1—With one million dollars worth of motor cars on display, the third annual show by the Dallas Automobile Dealers Association opened with the Texas State Fair October 16, and was concluded Sunday, October 31. The show is declared to be the greatest event of the kind the South has ever seen.

During the first nine days of the show, more than 200,000 visitors, many of them farmers, interested in the use of automobiles, passed through the building. Of this great mass of visitors it is believed that at least 50,000 of them stopped and asked questions regarding the merits of the various cars. This 200,000 attendance, however, represents only about one-fifth of the attendance at the Fair.

Space Ran Short

Under the leadership of J. W. Atwood, president of the Dallas Automobile Dealers and Accessories Association, and Buick representative, the show was staged to attract the attention of the farmer, the business man, the pleasure seeker and all interested in automobiles. There were thirty exhibitors and every foot of space was occupied. Had the building been larger, the space could have been profitably used, as the Wichita Motor Co. and several others were compelled to seek space in an adjacent building.

The show building was erected three years ago. It cost \$17,500 and is built of wood and concrete with concrete floors, large plate glass windows affording abundance of light; there are also several skylights.

The building proper is 149 x 264 ft. Plans have been made for an addition to the building before the next annual automobile show. The present affair is staged at a cost to the local dealers of approximately \$30,000. Of this expense, each dealer pays his share. No admission fee was charged this year, in the belief that without such there would be more visitors, in the end more automobiles sold, and finally a greater profit to the dealer. The heavy expense is caused by the lighting of the structure, the decorations and the fees for securing space in the building.

The automobile building is located in the middle of the fair grounds. All visitors who go through the fair grounds cannot miss the structure. The fair grounds are easily accessible; by street car and jitney the fare is five cents; however, during the present exposition, the attendance has been so great that many of the jitney buses charged a 10 cent

fare. Even then the buses were crowded at all times.

The exhibit as a whole was much greater than ever before. Few stripped chassis were shown, indicating that the question of good construction has been settled. Probably the most notable exception was the Stearns Knight-motored car displayed by the H. F. Fellows Co. Crankcase, differentials and valves of this exhibit were cut open to permit a close scrutiny of their arrangement. The mechanism was kept in operation throughout the day and thousands of visitors watched it work. There were on exhibition several all the year 'round cars and these took best with the moneyed people. One notable fact developed by this exhibit was that women in most instances are doing the buying. Especially is this so with the pleasure seeking car purchaser. However, it is not true among the farmers, for the farmer desires a heavy, durable car, one that he himself will be satisfied with, and he is doing the buying.

Another unusual feature was that almost every exhibit was presided over by the local dealer and by a factory representative. In some instances they were showing models designed for the mid-winter shows in New York city and Chicago. This, local dealers say, is the greatest indication of what the factory men think of Texas as the coming field for motor cars, and that they appreciate the Dallas fair as a means of advertising their cars.

Believes Record Broken

Speaking of the exposition at the end of the first week, J. W. Atwood, president of the Dallas Automobile Dealers and Accessories Association, said: "I believe from a business standpoint and from a standpoint of the number of visitors to view the motor car exhibit, we will break a record in the whole United States. I believe last Saturday and Sunday we had at least 50,000 visitors. Many of them, too, were prospective buyers. The exhibitors showed them what they had and the men will buy cars from the local dealers, for they will know what they get. As a business getter I say unquestionably that this exposition is without an equal in this part of the United States, and I do not believe the exhibits will be beat this year in any of the shows of the North or East. The exhibits have been a revelation, as it were, to the tens of thousands of farmers who have questionably viewed the exhibits. As a result, I am predicting a wider use of the automobile among the farmers of the South."

John D. Mansfield, sales manager for the Dort, said: "It beats anything I have ever seen. I believe attendance will establish a new record. I have never before seen so much interest among farmers as is shown here. I look for a great increase in business in the South as the result."

J. E. Wright, sales manager for the Allen Motor Co., Fostoria, Ill., said: "We are pleased with our exhibit and we believe the advertisement from this exhibition is the greatest we have ever had. We realize Texas is a great field and with the development of good roads, in a few more years, will be among the big automobile states of the nation."

R. L. Cameron, of the Cameron Automobile Co., distributor of the King, said: "Farmers are unquestionably the coming automobile buyers in Texas. I have never seen such an interest among the farmers. I believe the show at the fair is the greatest of the kind the Southwest has ever seen. It is far-reaching and will without doubt prove a revelation in the automobile business."

I. E. Rose, of the Ray Rose Co., Saxon dealer, said: "We are expecting a great increase in business. Farmers have shown themselves interested in our cars and we are looking for much business from the farmer."

Pleased With Result

W. W. Morris, Chalmers factory representative, said: "Am more than pleased with the show. It promises to be a business getter. It is a great thing for Texas and the Southwest. It is without an equal in this part of the country and compares favorably with anything in the North and East."

The car exhibitors were:

Metz Co., Metz; Randall Adams Auto Co., Packard and Chandler; Ilseng Motor Car Co., Grant and Monroe; Rose Fosdick Co., Hudson; Saxon Sales Co., Saxon; Magnolia Motor Sales Co., Pullman pleasure cars and Vim truck; Haynes Auto Sales Co., Haynes; Southwestern Kissel Kar Branch, Kissel; Buick Automobile Co., Buick; Overland Automobile Co. of Dallas, Overland; Gray Reardon Co., Pierce-Arrow, Paige and National; Cameron Automobile Co., Oakland and King; Moon Motor Car Co., Moon; Herff-Brooks Motor Car Co., Herff-Brooks; Chalmers Motor Co., Chalmers; Robert Kaye & Co., Milburn electric; Mutual Motors Co., Marlon and Imperial; Allen Motor Car Co., Allen; Franklin Motor Car Co., Franklin and Scripps-Booth; Munger Auto Co., Cadillac; Hart Bros., Maxwell and Apperson; Frawley Motor Co., Reo; Fellows Motor Car Co., Stearns-Knight; Cole Motor Co., Cole; Dallas Hupmobile Co., Hupmobile; Dort Motor Co., Dort; A. R. Hayden, Baker and Rauch & Lang electric; Jackson Motor Co., Jackson; Vehl-Crawford Hardware Co. of Fort Worth, Velle; Wiles Mfg. Co., trailers; Rogers Bros., steel trailer; Texas Wheel & Wagon Body Co.

Accessory exhibitors:

Fisk Company of Texas, Genemotor; Woods Vulcanizing Patch; M. & S. Sales Co. of Texas; Ferris Dunlap Auto Supply Co.; Electric Appliance Co.

Dallas is Short of Cars

DALLAS, October 25—A panic has hit Dallas. For the first time in several years there is a motor car scarcity. With one or two exceptions dealers are out of cars and can get no more until January or later.

Gas Up Further in K. C.

KANSAS CITY, Nov. 1—The independent distributors of gasoline have advanced the price from 10.8 to 11.8 cents to consumers. It has been declared by L. E. Thomason, sales manager for the independents in Kansas City, that there has been no storage of gasoline to speak of.

Gas Continues to Soar in the Western States

**Santa Fe Heads List With 20-cent Fuel
and Southern Cities Are Next—
Average Increase Since
March Is 4 Cents**

NEW YORK CITY, October 29—Gasoline prices continue to rise throughout the west, the latest advance being that in Cleveland, where Standard Oil has raised its price per gal. $1\frac{1}{2}$ cents to 14 cents to garages. The independents have met the increase by an advance of 1 cent a gal. to 14 cents. White Rose brand gasoline of the National Refining is now quoted at $16\frac{1}{2}$ cents a gal., an advance of 3 cents. The price of retail trade is 1 cent higher than these quotations. In March the garage price was 11 cents, and there was no change in price until September 9.

The average increase throughout the country has been about 4 cents a gal. since March. In the past six weeks gasoline prices at the various cities have been advanced two or three times. This week there has been an increase in price from 1 to 3 cents a gal. in the principal cities of the country, including Portland, Los Angeles, Seattle, Minneapolis, San Francisco, Detroit, Kansas City, St. Louis, Chicago, Louisville, Denver and Cleveland. The oil experts attribute the advance to the increase in motor cars, the general increase in demand for gasoline and the fact that production has not been increased.

The Standard Oil Co. of Indiana last week increased the price of gasoline in St. Louis 1 cent to 13 cents retail and 11.9 cents to tank owners. This follows the advance in Chicago of 1 cent to $12\frac{1}{2}$ cents and $11\frac{1}{2}$ cents respectively.

St. Louis jobbers estimate that the fight between the Standard Oil Co. of Indiana and the independents, which commenced last May, has netted the Standard Oil nearly \$90,000,000. About half of this represents the increase in the price of crude oil, of which the company bought nearly 67,000,000 barrels, which oil is still in the company's tanks. The other half has been made by buying all gasoline from the independent refiners in the Cushing oil field.

Gasoline prices in Cincinnati have been advanced 3 cents a gal. to 15 cents, and further advance is looked for. This price is for tank wagons. To wholesalers the price is 14 cents, although on contracts to wholesalers deliveries are being made at lower prices. The price in March for tank wagons was 12 cents and the wholesale price was 11 cents.

The Continental Oil Co. and the Midwest Refining Co. in Denver have advanced the price 1 cent to 17 cents a

gal. to tank wagons and 16 cents to garages.

In Louisville, gasoline now quotes at $13\frac{1}{2}$ cents a gal. on tank wagons, compared with 11 cents at the end of last March.

The accompanying table gives the current price in cents per gal. on a tank wagon or garage basis in the larger cities in the United States. This is compared with the price on March 31 and the advance in cents per gal.

	Current Price	March 31	Ad- vance
Atlanta .....	.18	\$.12.5	\$.05.5
Baltimore .....	.15.5	.11	.04.5
Boston .....	.18.5	.13	.05.5
Charleston, S. C. ....	.18	.15	.03
Cheyenne, Wyo. ....	.16	.15	.01
Chicago .....	.12.5	.10.5	.02
Cincinnati .....	.15	.12	.03
Cleveland .....	.14	.11	.03
Dallas .....	.17	.10	.07
Denver .....	.17	.15	.02
Detroit .....	.13	.10.5	.02.5
Douglas, Ariz. ....	.18.5	.16	.02.5
El Paso .....	.18	.11	.07
Ft. Worth, Tex. ....	.17	.10	.07
Hartford .....	.17	.11	.06
Houston .....	.17	.10	.07
Kansas City .....	.11.8	.09.8	.02
Louisville .....	.13.5	.11	.02.5
Los Angeles .....	.14	.12	.02
Memphis .....	.16	.10	.06
Minneapolis .....	.13.5	.11.5	.02
New York .....	.17	.12	.05
Newark, N. J. ....	.17	.09	.08
New Orleans .....	.15	.11	.04
Norfolk .....	.16	.12	.04
Oklahoma City .....	.17	.12	.05
Pensacola .....	.15	.15	
Philadelphia .....	.14	.11	.03
Portland, Mo. ....	.18	.13	.05
Portland, Ore. ....	.14	.12	.02
St. Louis .....	.11.9	.09.9	.02
St. Paul .....	.12.5	.11.5	.01
San Francisco .....	.13.5	.11.5	.02
Santa Fe .....	.20.5	.17	.03.5
Savannah .....	.17	.13	.04
Seattle .....	.14	.12	.02
Shreveport .....	.15.5	.10	.05.5
Tucson, Ariz. ....	.18.5	.17	.01.5
Vicksburg .....	.15	.13	.02

DENVER, Oct. 29—Gasoline jumped another cent late yesterday, and is now selling for 17 cents at the filling stations and majority of garages. A few garages are charging 18 to 20 cents, on the ground that they handle gasoline mainly as an accommodation and cannot afford to bother with it for any smaller profit. The price made by the oil companies direct to consumers in lots of 25 gals. or more is 16 cents. The companies claim that this advance, which is the fifth cent increase in less than 4 months, is due to a shortage of crude oil.

To Investigate Gas Prices

WASHINGTON, D. C., Oct. 30—Request has been made of the federal trade commission to institute an investigation of charges that illegal practices prevail in the marketing of gasoline. Price fluctuations have been brought to the attention of the commission, which, it is declared, are not explained by the difference in freight rates.

Many Fail to Pass Test for Lights in St. Louis

**City Operates "Shadow-box" and Lights
Must Not Shine Higher Than 3 Ft.
at Distance of 75 Ft.—\$3
Fines Plentiful**

ST. LOUIS, November 1—Approximately 300 motorists were arrested last week for violation of the recent ordinance forbidding the use on automobiles of headlights the rays of which at a distance of 75 ft. from the machine are more than 3 ft. above ground. One hundred already have been tried, found guilty and fined \$3 and costs. In most cases where the offender promised to have the lights on his machine corrected immediately the fine was remitted and he was let off with the payment of court costs amounting to little more than \$3.

The arrests were ordered by the police chief after 20 days' warning advising all motorists to have their lights properly adjusted free at the "Shadow Box" testing station in the City Hall basement. For two weeks this warning was neglected but since the police crusade has commenced from 200 to 500 automobile owners have driven their machines to the Municipal "Shadow Box" for the test and adjustment.

Salesmen for reflectors, ground glass lenses and other dimming devices crowded the sidewalks in front of City Hall for several days. Each told the motorist that his device was certain to pass the "Shadow Box" test. When the motorist reached the "Shadow Box" he found in most cases that a slight tilting of lamps would satisfy the ordinance. Many of the dimming devices sold in front of the City Hall, on the other hand, failed to bring the headlights' rays within the 75-ft. limit, and as a result all the salesmen were ordered away.

To avoid disputes at the police stations, "substantiators" were erected in front of each of the 12 stations. These are ordinary wooden planks 6 ft. high and about 1 ft. wide, which are set perpendicular to the street at the end of a 75-ft. black line painted on the cobblestones or asphalt. The "substantiator" is marked off in feet by black lines. When a motorist is brought to the station his machine is set at one end of the 75-ft. line and the lights turned on. If the rays reach higher than the 3-ft. mark the policeman's judgment is substantiated and the automobile driver is arrested.

When lights are adjusted at the "Shadow Box" a metal tag exempting that driver from arrest is affixed to the steering wheel. Motorists who adjust their own machines to satisfy the ordinance also are given these tags.

Association News

DEALERS TO STAGE SHOW

GRAND RAPIDS, MICH., November 1—The Automobile Business Association, comprising dealers and accessory men, will have charge of the seventh annual Grand Rapids automobile show, to be held in the Klingman Furniture Exposition building the week of February 20. Additional floor space has been obtained for the next show and already applications for reservations indicate that none of the space will be left over.

SOUTH BEND SHOW

SOUTH BEND, IND., November 1—The Fort Wayne Auto Trade Association has commenced to plan for a show this winter and a committee composed of Louis Ohnhaus, William Fuhrman and George Fox has been named to make arrangements for a suitable location. The association has petitioned the Automobile Chamber of Commerce not to produce yearly models nine months in advance, as is done now, but to wait until just before the new year to bring out the models.

MILWAUKEE SHOW RESULTS

MILWAUKEE, Nov. 1—Results from the show staged by the Milwaukee Automobile Dealers, Inc., at the state fair grounds, are considered to be very encouraging, and the undertaking was so successful as an attraction for the state fair that the agricultural commission has offered to set aside the same building for the show next year. The show was open five days, and during that time the total attendance was 40,000, of which 27,000 was paid attendance, mostly farmers; between 400 and 500 dealers outside of Milwaukee attended. The payment to the state fair for the use of the building was \$3,000 and the receipts from the sale of space and tickets were \$6,021 and \$2,700, respectively. In consequence, a dividend amounting to 85 per cent of the cost of space was returned to each exhibitor.

NEW HAVEN DEALERS MEET

NEW HAVEN, CONN., October 26—The regular monthly meeting of the New Haven Automobile Trade Association was held tonight at the Cafe Mellone, preceded, as usual, by supper. A score of members attended and discussed the possibility and the advisability of a show; the majority expressed willingness to exhibit at a show this year provided a suitable exhibition place could be found and the dealers, rather than some outsider, staged the show. A second committee was appointed to investigate gasoline prices and the quantities

consumed by the members, with a view to approaching the oil companies for bids on quantities in bulk. It was decided that the time was inappropriate for the association to take action of any kind regarding a uniform time for new model announcements. The meeting was addressed by Stanley P. McMinn, Motor World, on "Organization—Its Benefits," the talk being essentially a review of the excellent work which associations all over the country have been able to bring to successful conclusion through organization effort.

MONTREAL TIRE SECTION

Montreal, Nov. 1—In order to adjust the grievances of dealers who have had much to contend with in maintaining the list price on tires, the Montreal Automobile Trade Association has formed a tire section and adopted a tire price list by which members will be governed. T. C. Kirby is secretary of a committee which has the matter in hand, the other members being, Ernest Millen, C. W. Wigen, J. Tuckwell, Max D. Beese, R. Tanneton and J. H. A. Forest. The association is printing the tire price list in both English and French and furnishing it to members in such quantities as may be required. The association has sanctioned a discount of 5 per cent for cash on Canadian tires, but the list on Good-year tires is strictly maintained. The association sanctions the granting of trade prices only to the following: bona fide dealers who have subscribed to the schedule of resale prices quoted by manufacturers and jobbers; owners of five cars or trucks where tires are purchased for their own use exclusively; wholesale customers for mechanical goods, but only for their own use. The association will stage its annual show in the new Customs Warehouse, January 22 to 29.

WORCESTER TO DISBAND

WORCESTER, MASS., October 25—The Worcester County Automobile Association, that was formed last February to protect its members in a trade way, apparently has died, according to Secretary Eugene L. Caton. There were about 75 members affiliated with the organization and they comprised dealers in cars and accessories in Worcester county. Officers were elected and the first two meetings brought about much enthusiasm. Then there followed reports that some members were not living up to the rules on maintaining prices. According to Caton the fact that there is a body comprising the dealers in Worcester itself that looks after affairs pretty well, the need of a county organization was

not necessary. While no meeting has been held to disband the association it will probably mean that nothing further will be done, as there is no money to be disbursed and records of but two meetings to bother about.

EL PASO "AUTOMOBILE WEEK"

EL PASO, TEX., November 1—The plan to have an Automobile Week in El Paso, to begin Monday, November 29, and close on Saturday, December 4, is meeting with the enthusiastic support and endorsement of all the motor car, tire and accessory dealers. Individual displays will be made by dealers in their showrooms.

WASHINGTON ELECTS

SEATTLE, Nov. 1—The Washington Motor Trades Association has elected the following officers: J. E. Schellenberger, of Hughson & Merton, president; Newton Foster, of the Newton Foster Motor Car Co., vice-president; J. W. Johnson, secretary and treasurer. These with George Carscaden, of the Seattle Garage; O. G. Korb, of the Lyon Garage; J. L. Stixrub, of the Winton Motor Car Co., and W. S. Pearne, of the George W. Miller Co., will compose the board of trustees.

Jobbers to Have Pin

KANSAS CITY, Oct. 30—The National Association of Automobile Accessory Jobbers is to have a seal and a membership pin or insignia of some kind. The commissioner was today authorized to so act and to furnish members with electrotypes of the seal or mark for use on letterheads.

The association also clarified the atmosphere by ruling that where a member maintains legitimate branches it shall not be necessary for these branches to have separate memberships.

Page Salesmen Win Awards

PHILADELPHIA, Nov. 1—The winners of the prizes offered Mitchell salesmen by the Carl H. Page Motor Co., assembled recently in the dining room of the Philadelphia Automobile Trade Association, together with about 30 other members of the sales force. The salesmen were addressed by Carl H. Page, Sales Manager George Hipple and others. Those who won the prizes and their amounts are as follows: \$50 to each of the following: Al. Berger, G. H. Lovell, William O'Dell, of New York; A. W. Christopher, Earl Gilmore, of Newark; William R. Darroh, L. Schneck, Frank Hamilton, of Philadelphia; \$25 each to the following: Leonard Miller, Victor Richardson, of Newark; C. B. Derby, L. T. Johnson, O. G. Gude, A. Dickerson, of New York; A. J. Heilman, of Brooklyn, and W. H. Eger, of Philadelphia. \$600 was awarded in all.

Boston Up in Arms Over Proposal to Raise Fees

In Effort to Raise State's Taxes Motor Cars Have Been, as Usual, Picked Out as a Mark—Increase Drastic

BOSTON, Nov. 1—Boston dealers and motorists are up in arms over a tentative draft of a measure which would materially increase the present tax on motor cars in Massachusetts. The draft came up for a hearing before a special committee, appointed by the last legislature, to devise ways and means of increasing the state taxes and, as usual, motor cars seemed worthy of consideration. As the committee has power to make recommendations to the legislature, these are given considerable attention.

The measure eliminates Section 29 of the present law and proposes an entirely new one which would impose the following tax:

For the registration of motor vehicles equipped in whole or in part with solid rubber tires, or tires of metal or other material, 30 cents for each 100 lbs. of weight of the vehicle and its load when loaded to normal carrying capacity; and 50 cents additional for each horsepower developed by the motor at full capacity.

For the registration of all other vehicles, pleasure or commercial, 25 cents for each 100 lbs. weight of vehicle and load, reckoning the average weight of each passenger at 150 lbs.; and 50 cents additional for each horsepower developed by the motor at full capacity.

For chauffeurs' licenses \$3, and for the renewals of them \$1.

For owner's license to drive \$5, and for renewals of them \$2.

It is proposed that 50 per cent of the increase in fees be retained by the Highway Commission for highway maintenance, the remaining 50 per cent to be distributed annually, in November, to the cities and towns in the commonwealth in proportion to the mileage of main thoroughfares, not state highways, in each city, which during the 60 days preceding are oiled or otherwise rendered waterproof and maintained in a satisfactory condition. The act would become effective Jan. 1, 1917.

Springfield Divided on Curb Pumps

SPRINGFIELD, MASS., Nov. 1—The Board of Supervisors of this city is trying to decide whether curb gasoline pumps are good things or bad and whether they will let the garageman and others continue to use them or not. Most of the smaller dealers want to be permitted to continue the use of their pumps, though it is understood that the larger garages are opposed to pumps because they permit anyone, dealer or otherwise, to handle gasoline. One plumber in Springfield peddles gasoline. It is variously proposed that there be a heavy license fee of about \$100 and that there be a small license fee and that there be none. More than 40 dealers and garagemen attended a hearing last week.

Heavy Trucks from Milwaukee

MILWAUKEE, Nov. 1—The National Brake & Electric Co., Milwaukee, is engaged in the development of a new heavy-duty motor truck of the gas-electric type. The company is part of the Westinghouse group. No information relative to the new product will be given out until development work is completed

De Palma in Sunbeam 12 Makes Lap at 116 m.p.h.

Veteran's Time, While Unofficial, Is Fastest Speed Ever Made on a Track—Record is 111 M. P. H.

NEW YORK, Oct. 29—Ralph De Palma, in a 12-cylinder Sunbeam, today made 2 miles in 1 min. 2.4 seconds on the Sheepshead Bay Speedway, an average of about 116 miles an hour. Though the time is unofficial, nevertheless it is the fastest speed ever made on a track, and not only beats the car's own record of 107 miles an hour when driven by Chasagne over the Brooklands track, but eclipses the best American record average of 111 miles, made by Barney Oldfield in a Christie at Chicago. The timing at Sheepshead was done by J. G. Vincent, vice-president and chief engineer of the Packard company, who used a stop watch.

De Palma will not enter the 100-mile race on Election Day, not being able to get his Mercedes in shape. However, he will drive the Sunbeam 12 in an exhibition trial.

Six entries for the 100-mile invitation race for the Harkness gold cup have been made for the Speedshead Bay Speedway meet on Election Day, as follows: Resta, Burman, Aitken and Mulford, in Peugeots; Rickenbacher, Maxwell, and De Palma in his Mercedes. The trophy is open only to drivers who have won big races this year and is to be the object of competition annually. A gold miniature of the cup will be presented to the winner on Election Day.

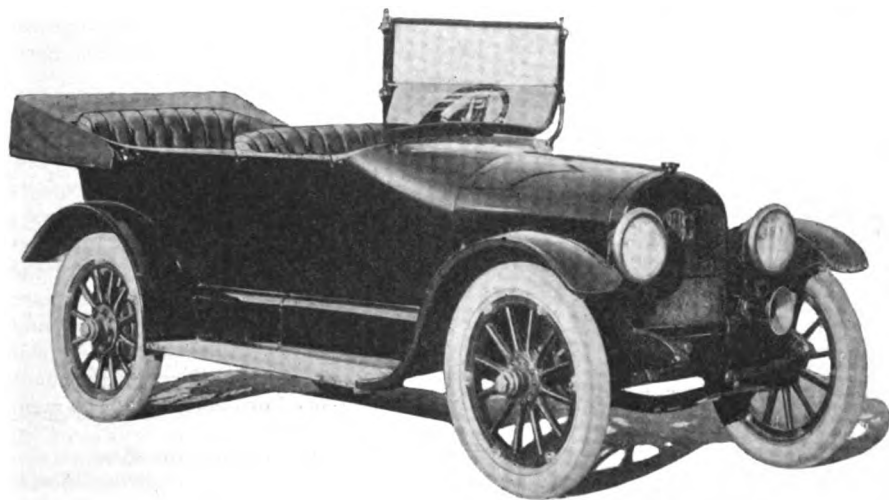
Burman, in his Blitzen Benz, will try to make a lap in a minute or less, or at the rate of 120 m. p. h.

Studebaker District Conferences

DETROIT, Oct. 28—The Studebaker Corp. has inaugurated a new policy with regard to branch managers and dealers, getting together with the factory officials for general conference or convention purposes. Heretofore the dealers and branch managers came to the administration offices in South Bend, Ind., to confer with the officials. Hereafter there will be conferences of the men in the cities where Studebaker has branches and where it will be easier to get the salesmen of the district or territory together.

The first of these conference meetings was held in Chicago this week, when about fifty Studebaker dealers from Illinois, Wisconsin and Indiana met and discussed matters concerning advertising campaigns, selling methods, production and other merchandising matters of interest to them.

Improved King Eight is Reduced to \$1,150



The new King has a 2½ x 5 motor, a larger carburetor, refinements in the lubricating system, the ignition and the radiation. The color scheme has been changed from blue to salon green body and hood, with black fenders, running gear and wheels; there is a fine gold stripe. Leather has been changed from bright to dull finish

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

A. E. Houghton, formerly with the Dodge Bros. headquarters in Denver, Colo., has been promoted district representative in Omaha, Neb.

C. A. Biggs has been appointed district representative for Dodge Bros. in Denver, Colo.

Henry Jossman, formerly with the Oakland Motor Car Co., has been appointed sales manager of the Columbia Truck & Trailer Co., Kalamazoo, Mich.

George H. Phelps has been appointed director of advertising for Dodge Bros., Detroit.

B. J. Corn has been made district sales manager for the Detroit Motor Car Co., Detroit, and will cover the states of Indiana and Kentucky.

W. H. Schwab, formerly sales manager of the Gemco Mfg. Co., Milwaukee, and **C. W. Beckler**, formerly advertising manager for the same concern, have severed their connection with that company and become affiliated with the Auto Parts Mfg. Co., Milwaukee.

J. B. True, Jr., has been appointed director of sales of the Gemco Mfg. Co., Milwaukee. He will also have supervision over the advertising department.

Lee J. Eastman has been appointed manager of the Packard Motor Car Co. of Philadelphia, succeeding **E. B. Jackson**, who has taken charge of the New York branch.

J. H. Payne has been made manager of the automobile department of the Gibson Co., Indianapolis.

H. J. Smith, Minot, N. D., has opened a service station for the Studebaker, which is handled by the Champlin Implement Co.

E. J. Bush, Minot, N. D., recently opened a garage and repairshop. He handles the Oakland. Bush formerly operated the Malta Garage in Malta, Mont., but was burned out.

Griffith Bros., Conrad, Mont., will build a commercial garage and repairshop.

Embertson & Olson, Valley City, N. D., have purchased a two-story building, 50 x 100, near the Northern Pacific station and will alter and fireproof it; 25 ft. of brick construction will be added at the front, the first story raised and the floor concreted. The firm handles the Ford and formerly made its headquarters in the Pegg Garage.

C. H. Tucker, formerly service manager of the Cole Automobile Co. of Missouri, has been appointed service manager of the De Luxe Automobile Co., St. Louis distributor of the Oldsmobile and Metz.

Park G. Frazier, formerly with the Philadelphia branch of the Kelly-Springfield Tire Co., has taken charge of the St. Louis branch of the same company as manager, succeeding **H. Lee Smith**.

Massachusetts Regulates Lamps

BOSTON, Nov. 1—The Massachusetts Highway Commission has at last formulated its regulations for motor headlights, and it is planned to make them effective on January 1, next. When approved and advertised they have the effect



"TED" JOHNSTON
Oakland, Philadelphia

District Representatives

XXXI

This is No. 31 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

T. S. Johnston—better known as "Ted" Johnston—who is district representative of the Oakland Motor Co. in Philadelphia, with headquarters at 227 North Broad street, became district sales manager two years ago. Prior to that he was for six years with the Buick company, handling special work, such as establishing branches and later holding the position of branch manager in Washington, D. C. He left Buick to become general sales manager of the Chevrolet Motor Co., and when the Chevrolet factory was moved from Detroit to Flint he resigned to join the Oakland forces. Johnston's territory includes the eastern part of Pennsylvania, New Jersey, Delaware, Maryland, Virginia and North Carolina.

fect of law. If changes are necessary later they may be made without legislative action at any time.

The regulation follows:

Wherever there is not sufficient light, within the limits of the highway location, to make all vehicles, persons, or substantial objects clearly visible within said limits for a distance of at least 150 ft., the white lights which a motor vehicle is required to display by Section 7 of Chapter 534 of the Acts of 1909 shall, when said vehicle is in motion, throw sufficient light ahead to show any person, vehicle, or substantial object upon the roadway straight ahead of the motor vehicle for a distance of at least 150 ft. Any light thrown directly ahead or sideways shall be so arranged that no dazzling rays from it or from any reflector shall be at any time more than three and a half feet above the ground on a level road at a distance of 50 ft. or more ahead of said vehicle, and said light shall be sufficient to enable the operator of the motor vehicle to see any person, vehicle, or substantial object upon the roadway or side thereof, for 10 feet on each side of the motor vehicle 10 feet ahead of said vehicle.

Washington to Tax on Horsepower?

WASHINGTON, D. C., Oct. 30—If the recommendations of **Ben L. Price**, tax collector, are adopted by Congress, Washington motorists will have to pay an annual registration fee in lieu of the perpetual license fee of \$2 that is now exacted. In his annual report Price recommends that a license fee based on horsepower rating be charged, and he suggests that the fees exacted by Maryland and Virginia be followed. If such a fee is charged it will take the place of the present personal tax fee that is charged in addition to a fee of \$2 that must be paid to secure a license number, such number being good as long as the person who takes it out owns the car. If the car is sold at any time the license number becomes void and a new one must be secured for use on the new motor car.

Form Automobile Reserve Corps

NEW YORK, October 30—The organization of an Automobile reserve corps in every state in the Union has been approved by the following governors: Goldsborough of Maryland, Philipp of Wisconsin, Hays of Arkansas, Kendrick of Wyoming, Hunt of Arizona, Boyle of Nevada, Carlson of Colorado, Whitman of New York, the Adjutant General for the Governor of Georgia, Stewart of Montana.

Mayor Marx of Detroit has indorsed the A. R. C. and suggested that his indorsement be presented to the Wolverine Automobile Club of Detroit. This has been done.

The mass meeting of motorists to be held in New York awaits the assignment of a date by Captain Lorillard Spencer. As Captain Spencer was appointed military secretary to Governor Whitman last week, the promoters of the mass meeting have to wait until he returns from Albany before any announcement can be made.

Overland Increases Output

TOLEDO, Oct. 29—Within a few weeks, the Willys-Overland Co. expects to increase its production by 1,000 cars a week. Everything possible is now being done to hasten the completion of the additions under way and when these are ready, additional machinery installed and everything put into full operation, it will mean that the working force of the plant will be increased probably by 10,000 men.

Silverberg Visits the East

NEW YORK, Nov. 1—Irvin Silverberg, president, Irvin Silverberg & Co., San Francisco, California distributor for the Eisemann magneto and F & S, Norma and New Departure bearings, has been East on a business trip during the past 10 days.

OVERLAND ELECTS OFFICERS— EARL A DIRECTOR

TOLEDO, O., Nov. 1—C. A. Earl was elected a director and one of the vice-presidents of the Willys-Overland Co. at the annual meeting of the stockholders last week. The following directors and officers were re-elected: President, J. N. Willys; vice-presidents, Isaac Kinsey, O. S. Jameson, H. L. Shepler, H. T. Dunn; secretary, R. R. Scott, and treasurer, Walter Stewart. At the close of the stockholders' meeting the directors elected the following executive committee: J. N. Willys, H. T. Dunn, H. T. Shepler, C. S. Jameson, R. R. Scott and Walter Stewart.

FORD'S CANADIAN PROFITS

FORD, ONT., Oct. 26—During the fiscal year ending September 30, the Ford Motor Co. of Canada, Ltd., sold 24,501 cars. The company's profit and loss account showed a profit of \$3,202,458.15, or over \$1,000,000 more than when the year of 1914 ended.

The surplus account was credited with \$3,327,342.36 as against \$1,804,846 in 1914. Including the surplus carried forward from the 1914 business year and after deducting the 50 per cent cash dividend announced recently, the total surplus on September 30 was \$6,529,800.51.

Assets totaled \$9,182,408.30, or over \$3,500,000 more than at the end of 1914. Among the assets the cash on hand and in bank was \$2,609,997.65, or about \$1,400,000 ahead of the total in 1914. The plant's valuation in Ford City has been assessed at \$2,743,112.07, while in the 1914 balance sheet its value was only \$1,875,114.36. Plants in other cities, that is, branch plants, are recorded for \$974,479.34, or over double the total of 1914. The accounts receivable show an increase of nearly \$700,000, totaling \$1,027,573.17, of which over \$580,000 represent foreign accounts.

Among the liabilities, accounts payable figure for \$874,848.33, or about \$600,000 more than in 1914. The reserves are \$439,288.51, as compared to \$276,166 in 1914. Profits which totaled \$2,022,496.06 in 1914, passed to \$3,202,458.15 in 1915. The surplus was \$3,327,342.36, as compared with \$1,804,846 in 1914.

Nine More Use Bosch

New York, Nov. 1—The Bosch Magneto Co. has closed contracts with the following concerns to use Bosch magnetos for the coming season: Chandler Motor Car Co., Cleveland; Crawford Automobile Co., Hagerstown, Md.; Continental Motor Mfg. Co., Detroit; O. Armleder Co., Cincinnati; Palmer-Meyer Motor Car Co., St. Louis; H. E. Wilcox Motor Co., Indianapolis; U. S. Motor Truck Co., Cincinnati; Hendrickson Motor Truck Co., Chicago; Alamo Mfg. Co., Hillsdale, Mich.

M. Eckhart Heads Auburn

AUBURN, IND., Nov. 1—Morris Eckhart has been elected to the presidency of the Auburn Automobile Co., succeeding his father, Charles Eckhart, who died a short time ago. The other officers are, first vice-president, F. E. Eckhart; second vice-president and sales manager, J. I. Farley; secretary, W. H. Denison; treasurers, F. B. Sears.

Penberthy Gets Ball Carbureter

DETROIT, Nov. 1—The Penberthy Injector Co. has secured the right for

Factory News of the Week

the Ball & Ball carbureter in U. S. and Canada and is now manufacturing the device. F. H. Ball and his son, F. O. Ball, formerly connected with the Ball Engine Co., Erie, Pa., have been retained as engineers.

SPLITDORF ADDS BUILDING

Newark, N. J., Nov. 1—The Splitdorf Electrical Co. will erect an additional factory building, 300 x 50 ft. and six stories high, adjoining the present main building. It will be brick and will equal 75 per cent of the present floor space. The building will be finished within 6 months. At the present time the magneto output is 1,500 a day, and this will be increased to 2,000 when the new building is completed.

Hoosier Takes B-T-K

MUNCIE, IND., Nov. 1—The Hoosier Auto Parts Co. has been incorporated with a capital of \$100,000 by George A. Ball, Karl A. Oesterle and Fred J. Lest and has taken over the plant, stock and business of the B-T-K Gear & Engine Co. The Hoosier company will produce parts, including steering gears, control sets, clutches, universal joints, etc., and will maintain a service department for supplying repair parts formerly produced by the B-T-K company.

Universal Takes Place of Just

SYRACUSE, Nov. 1—The Just Specialty Co. was dissolved October 15 and a new company, styled Universal Equipment & Supply Co., formed to take its place. The new concern will manufacture and distribute a number of accessories, including the Simplicity valve grinder, formerly produced by the Just company.

I. H. C. REDUCES PRICES AND ADDS TWO MODELS

AKRON, O., Nov. 1—The International Harvester Co. of America has made sweeping reductions on all its models, and two new models have been added. The line now includes four types of trucks, rated at 1,000, 1,500 and 2,000 lbs. capacity, prices ranging from \$600 to \$1,500. The new models are a 1,500-lb. truck at \$950 and a 1-ton truck, the chassis for which sells at \$1,500. All four models are now equipped with either solid or pneumatic tires.

SPRINGFIELD TO DETROIT

SPRINGFIELD, MASS., Nov. 1—Without giving their employers an opportunity to arbitrate, 350 employees of the Springfield Metal Body Co. went out on strike last week, demanding an 8-hour day and recognition of the Union. For some time the removal of the plant to Detroit has been contemplated in view of the fact that a large part of the company's business is now with Detroit car manufacturers. Unless the strikers return to work, it will be necessary to remove the machinery at once so that the company can fill orders at once.

WARNER DEVELOPS TRAILER

BELOIT, WIS., Nov. 1—A. P. Warner, Beloit, one of the founders of the Warner Instrument Co., now the Beloit works of the Stewart-Warner Speedometer Corp., Chicago and Beloit, has developed a light trailer truck for motor cars and is about to engage in the manufacture of the appliance on a large scale. The machine will be known as the Warner trailer.

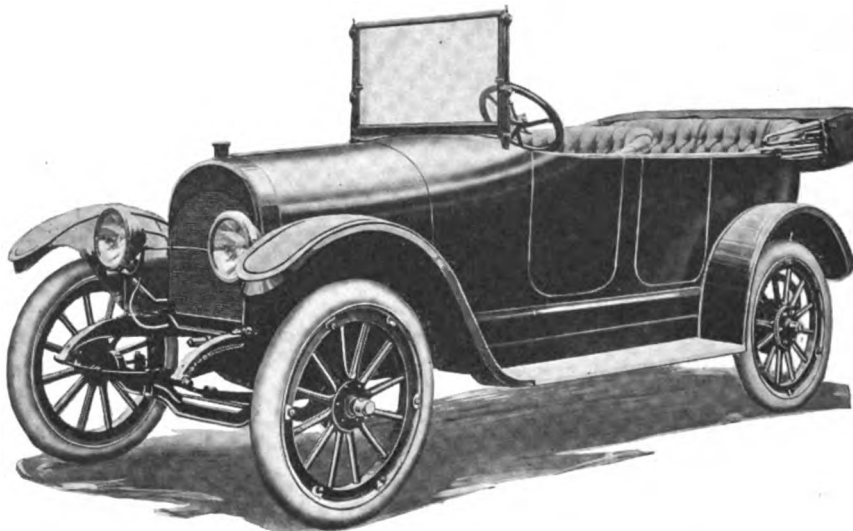
American Brewers Add Tanks

MILWAUKEE, Nov. 1—The American Brewers & Bottlers Specialty Co. has entered the motor car field and will specialize on gasoline tanks.

Manzel Pump Reduced to \$15

The price of the two-cylinder engine-driven tire pump, made by the Manzel Bros. Co., Buffalo, has been reduced from \$20 to \$15. This price will include all fittings.

Newest Model Partin-Palmer Five-passenger at \$675



This is the only model the Commonwealth Motors Co., Rochelle, Ill., will produce for 1916. It has a four-cylinder $3\frac{1}{2}$ x 5 motor, 3-speed gearbox and floating axle. The wheelbase is 110 in. and the tires are 32 x $3\frac{1}{2}$. Electric lighting and starting equipment is included.

MORE ACCESSORY EXHIBITORS FOR NATIONAL SHOWS

NEW YORK, Nov. 1—Following is a list of additional accessory exhibitors for national shows in New York and Chicago:

New York and Chicago

American Taximeter Co., New York.
Auto Gear & Parts Co., New York.
B. & L. Auto Lamp Co., New York.
Celfor Tool Co., Buchanan, Mich.
Class Journal Co., New York.
Cutting-Armstrong & Smith Sales Co., Detroit.
Daly & Co., Detroit.
Essex Rubber Co., Trenton, N. J.
Evans Engine Co., Inc., New York.
Ever Tight Piston Ring Co., St. Louis.
Gates Mfg. Co., Indianapolis.
Interstate Electric Co., New Orleans.
Kemco Elec. Mfg. Co., Cleveland.
Leece-Neville Co., Cleveland.
Lipman Air Appliance Co., Beloit, Wis.
McQuay-Norris Mfg. Co., St. Louis.
Manzel Bros., Buffalo.
Prest-O-Lite Co., Indianapolis.

New York Only

Able Engine Co., Inc., New York.
American Die & Tool Co., Reading, Pa.
American Express Co., New York.
Armstrong Cork Co., Pittsburgh, Pa.
Asch & Co., New York.
Bausch Machine Tool Co., Springfield, Mass.
Eug. Bournonville Welding Co., New York.
Comfort Shock Absorber Co., Hempstead, N. Y.
Curtiss Pneumatic Machinery Co., St. Louis.
Dann Spring Insert Co., Chicago.
P. Dempsey, New York.
Dunham Piston Ring Co., New York.
Electric Automatic Cigar Lighter Co., New York.
J. H. Faw, Inc., New York, N. Y.
Fitzgerald Mfg. Co., Torrington, Conn.
C. H. Foster Accessories Co.
Peter A. Frasse & Co., New York.
Fryer-Auster Co., Providence, R. I.
Emil Grossman Mfg. Co., Inc., Brooklyn, N. Y.
Guide Motor Lamp Mfg. Co., Cleveland.
Hill Mfg. Co., New York.
Hill Pump Valve Co., Chicago.
Holt-Wells Co., Inc., New York.
Houpt Machine Co., New York.
Humboldt Mch. & Stamping Co., Long Island City, N. Y.
K. T. Lever Spring Co., New York.
Kales-Haskell Co., Detroit.
Laidlaw, Inc., New York.
Lane Bros. & Co., Poughkeepsie.
S. Leschziner, Newark, N. J.
S. W. Merritt Co., New York.
Metal Specialties Mfg. Co., New York.
Charles E. Miller, New York.
Morse Chain Co., Ithaca, N. Y.
L. G. Mutt, Boston.
Newmastic Co., New York.
O'Bannon Corp., New York.
Pittsburgh Electric Specialty Co., New York.
F. Relly & Son, Newark, N. J.
Rutherford Rubber Co., Rutherford, N. J.
Sharp Spark Plug Co., Cleveland.
Silvex Co., New York.
Splitter Puncture Plug Co., New York.
John P. Stanley Co., Inc., New York.
Story & Reed, Inc., New York.
Sunderman Safety Carburetor Corp., Newburgh, N. Y.
Superior Lamp Mfg. Co., New York.
U. S. Gauge Co., New York.
Masson Piston Ring Co., Hoboken, N. J.
Webber Mfg. Co., Boston.
West Steel Casting Co., Cleveland.
Western Tire & Rubber Co., Kansas City.
Whalen Engineering Co., New York.
White & Bagley Co., New York.
C. A. Willey Co., Long Island City, N. Y.
Wood Mfg. Co., Fairfield, Conn.

Chicago Only

Ahlberg Bearing Co., Chicago.
Apex Electric Mfg. Co., Chicago.
Atlas Spec. Mfg. Co., Chicago.
Benjamin Electric Mfg. Co., Chicago.
Buchanan Electric Steel Co., Buchanan, Mich.
Cochran Pipe Wrench Mfg. Co., Chicago.
E. Edelman & Co., Chicago.
Edison Storage Battery Co., Orange, N. J.
Gordon Tire & Rubber Co., Canton, O.
Hess Spring & Axle Co., Carthage, O.
L. Lawrence & Co., Newark, N. J.
Lincoln Electric Co., Cleveland.
Morrison-Ricker Mfg. Co., Grinnell, Ia.
A. Nelson Mfg. Co., Chicago.
Paul G. Niehoff & Co., Chicago.
Pierce Speed Controller Co., Anderson, Ind.

Tobey Furniture Co., Chicago.
Tuthill Spring Co., Chicago.
Van Cleef Bros., Chicago.

SOENNICHSEN REENTERS TRADE

WILWAUKEE, Nov. 1—Andreas M. Soennichsen, who recently retired from the Auto Parts Mfg. Co., Milwaukee, has organized the A. M. S. Co., Milwaukee, to engage in the manufacture of a line of newly patented articles for the motor car trade. A plant has been established in the Manufacturers' Home building, foot of Mason street, Milwaukee. The company is capitalized for \$10,000, and in addition to Soennichsen the incorporators are George W. Browne and Thos. C. McMillan, of the Overland-Wisconsin Co. and Geo. W. Browne, Automobiles, Inc., Milwaukee. The products will include shock absorbers, windshields, bumpers and fenders, etc.

Lozier to Be Continued

DETROIT, Oct. 29—With a capital stock of not less than \$3,000,000, the Lozier Motor Co. will be reorganized and will continue to make Lozier cars. Two of the big stockholders, Maurice Rothschild and Charles Shongood, who were vice-presidents of the company, and who were among those who purchased the assets of the old concern, have withdrawn from the company and disposed of all their holdings to Theodore Friedeberg, Harry and Samuel Frank, who now control all the stock of the company. A deal was completed a few days ago between the present stockholders and the Detroit Trust Co., trustee in bankruptcy for the former bankrupt concern, whereby the real estate and plant here in Detroit, upon which the Associated Lozier Purchasers had an option, has been purchased by the latter, after the proposition had been submitted to the United States district court and approved by it. The officials of the Lozier Motor Co. are Theodore Friedeberg, president; Harry Frank, treasurer, and Samuel Frank, secretary and general manager. U. G. Thomas is factory manager.



*Indicates sanction by A. A. A.

- Nov. 20.....Phoenix, Ariz., 150-mile track meet.
- Nov. 29-Dec. 4.....Omaha, Neb., Track race-meet.
- Jan. 25.....Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
- Jan. 26-27.....Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
- May 13.....New York City, Sheepshead Bay Speedway race-meet.
- May 30.....Indianapolis, Ind., Track race-meet.
- June 17.....Chicago, Ill., Speedway race-meet.
- June 28.....Des Moines, Ia., Speedway race-meet.
- July 4.....Minneapolis, Minn., Speedway race-meet.

THE SHOW CIRCUIT

- Nov. 12-20.....Providence, R. I., Show, Automobile Dealers Assn., State Armory.

- Nov. 22-27.....Binghamton, N. Y., Annual Show, Binghamton Automobile Dealers Assn., State Armory.
- Dec. 6-11.....Springfield, Mass., Show, Auditorium. H. J. Stacy, manager.
- Dec. 31-Jan. 8.....New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
- Jan. 3-9.....New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
- Jan. 8-15.....Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
- Jan. 8-15.....Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn.
- Jan. 17-22.....Rochester, N. Y., Show, Exposition Park. C. A. Simmons, manager.
- Jan. 18-22.....Lancaster, Pa., Show, Cone-stoga Park Pavilion.
- Jan. 22-29.....Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.
- Jan. 22-29.....Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 23-30.....Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.
- Jan. 24-29.....Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
- Jan. 29-Feb. 5.....Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
- Jan. 29-Feb. 5.....Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
- Feb. 7-12.....Kansas City, Mo., Show, Kansas City Motor Dealers Assn., Convention Hall.
- Feb. 14-19.....Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
- Feb. 19.....Newark, N. J., Show.
- Feb. 29-Mar. 4.....Fort Dodge, Ia., Fifth Annual Show, Fort Dodge Auto Dealers Assn., Terminal Building.
- Feb. 20-27.....Grand Rapids, Mich., Seventh Annual Show, Grand Rapids Auto & Accessory Dealers Assn., Klingman Bldg.
- Feb. 21-26.....Omaha, Neb., Eleventh Annual Show, Omaha Automobile Assn., Clark G. Powell, manager.
- Feb. 21-26.....Syracuse, N. Y., Show, Syracuse Automobile Dealers Assn.
- March 4-11.....Boston, Mass., Fourteenth Annual Show, Boston Automobile Dealers Assn., Boston Commercial Vehicle Assn.
- Mar. 28-Apr. 3.....Manchester, N. H., Show, under auspices of Couture Bros.; Academy.

Chalmers Sells Saxon Stock

DETROIT, Oct. 30—Harry W. Ford, president of the Saxon Motor Co., has purchased all the stock which Hugh Chalmers, president of the Chalmers Motor Co., held in the Saxon company. The deal involves a cash transaction of half a million dollars and makes Ford the largest individual stockholder in the Saxon company, of which the original stockholders were, besides Chalmers and Ford, Lee Counselman, Percy Owen, Geo. W. Dunham, and H. H. Pinney, C. A. Pfeffer, C. A. Woodruff and C. C. Hinkley, the latter four having disposed of their interests some time ago. The manufacturing schedule of the Saxon company for the present season calls for a production of 28,600 cars. They are now being shipped at the rate of 100 per day.

MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 6

New York, November 10, 1915

Ten cents a copy
Two dollars a year



WE might use a thousand words to tell you that the Chalmers is the most popular and fastest selling car in its class. But the clinching proof of this is the *fact* that Chalmers sales increased 302% the first three months of this season compared with the same period of last season.

Only real merit in the Chalmers car, plus unusual performance and a live, hustling business organization, could accomplish this result.

Our dealers tell us, however, that their greatest satisfaction is not only in increased sales, but in the business-like treatment they receive from this company.

It is not enough merely to make money selling a line of motor cars. To be happy in your relations with the company whose product you sell makes business agreeable as well as profitable.

We are increasing the number of our dealers. If you are thinking of taking on another line of cars or figuring on making a change we suggest that you get in touch with our sales department.

Chalmers Motor Company
Detroit

Greater Motor Efficiency With Less Engine Trouble

BELONGS to motors that are equipped with gas-tight spark plugs. Car owners know that leaky plugs cause the engine to miss and knock, which seriously affects motor efficiency and is sure to bring on engine trouble.

Protect your motor from engine knocks and permit extreme spark advance with A C Plugs. Increased efficiency is the result, with more fuel economy and less motor wear.

A C Spark Plugs Guaranteed Gas-Tight

are used by the leading automobile firms in the country. See the list below.

A C Spark Plugs are furnished

for *every* make of motor—bar none. Your dealer can supply you with exactly the same kind of A C Spark Plugs that DePalma and Burman win their races with.

Champion Ignition Company, Flint, Michigan



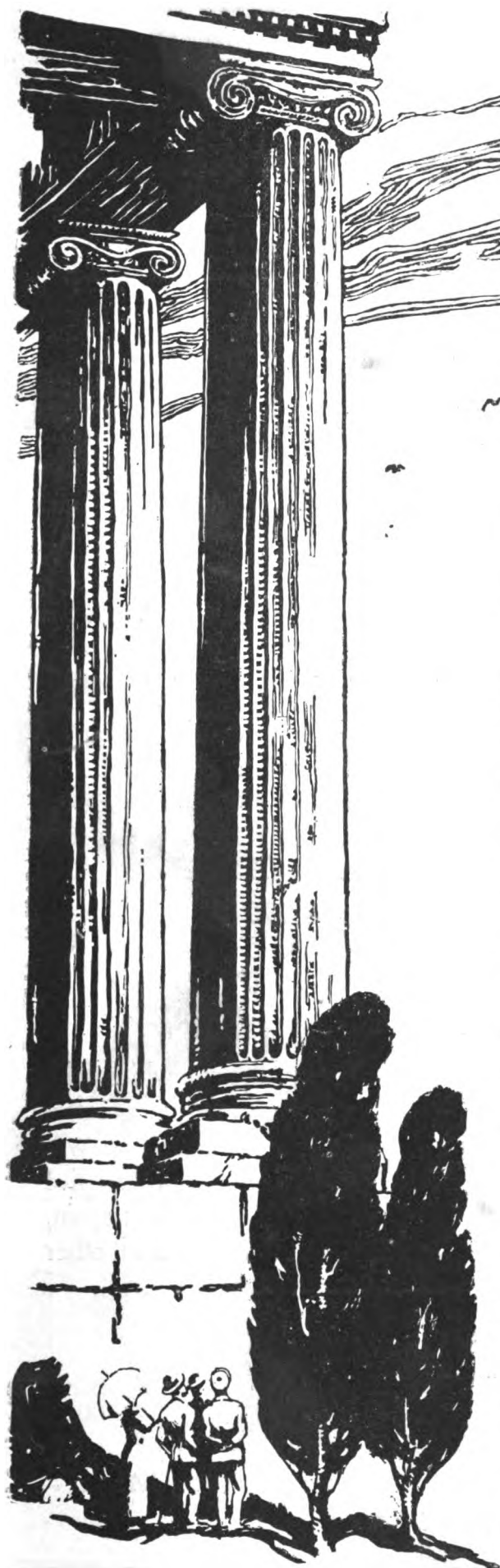
These Leaders Use A C Spark Plugs

Apperson
Brockway
Truck
Buick
Cadillac
Case Tractors
Chalmers
Chandler
Chevrolet
Cole
Davis
Dodge Brothers
Dort
Enger
Federal
Glide

G. M. C.
Haynes
Harley-Davidson
Hudson
Hupmobile
Jackson
Knox
Lambert
Lexington-
Howard
McFarlan
Moline-Knight
Monroe
Moon
National
Oakland

Oldsmobile
Paige
Packard
Paterson
Peerless
Pierce-Arrow
Pilot
Reo
Saxon
Scripps-Booth
Simplex
Stearns-Knight
Stutz
Velie
Westcott
Wilcox Trux





—building a business to **ENDURE**

The wise dealer is looking to the future. He is **BUILDING** a lasting business—a firm-rooted structure that **ENDURES**.

He knows that Studebaker is not only building its own business to **ENDURE** but sparing no effort to aid its Dealers to do the same. He knows that Studebaker will always be in the forefront of the industry—that Studebaker products will always represent the **GREAT** values of the market just as they do this year with the **ONLY** 7-passenger, 6-cylinder car with a **FIFTY** Horse Power motor at less than \$1,450 and the **ONLY** 7-passenger, 4-cylinder car with a **FORTY** Horse Power motor at less than \$1,000.

He knows that Studebaker volume of sales and facilities of manufacturing insure prices that handicap **OTHER** dealers—that Studebaker selling co-operation is his. And he knows that with such close unity of interests the wise dealer builds as Studebaker builds.

Are you **BUILDING**? Why not write



STUDEBAKER

South Bend, Ind. Detroit, Mich. Walkerville, Ont.

Address all correspondence to Detroit

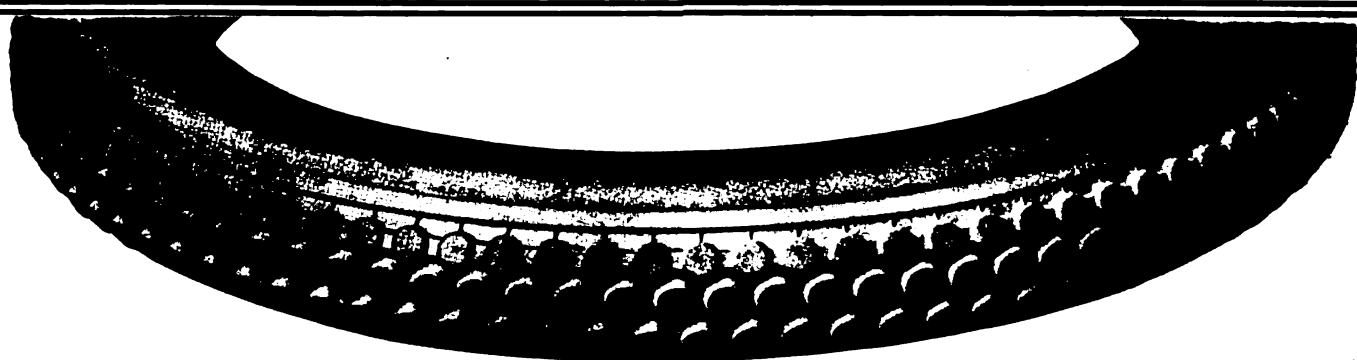
Four-Cylinder Models

Touring Car, 7-passenger	\$885
Roadster, 3-passenger	850
Landau-Roadster, 3-passenger	1185
Panel Delivery Car	875
Open Express Car	850
Station Wagon	875

Six-Cylinder Models

Touring Car, 7-passenger	\$1050
Roadster, 3-passenger	1000
Landau-Roadster, 3-passenger	1350
Coupe, 4-passenger	1550
Limousine, 7-passenger	2250
F. O. B. Detroit	

When writing advertisers please mention Motor World



FISK

NON-SKIDS

**If You Carry Fisk Tires Your Customers
Will Regard You As A Live Dealer**

THE demand for Fisk Non-Skids has been very great all season and is constantly increasing. Your aim is to increase your business and your profits. There is no simpler way of doing this than to get into line with this demand for Fisk Non-Skids and get your share of it.

Fisk Non-Skid Casing Prices

3½ x 30 - \$12.20	4½ x 34 - \$27.30
4 x 33 - 20.00	4½ x 36 - 28.70
4 x 34 - 20.35	5 x 37 - 33.90

Fisk Plain Tread Prices are 5% lower than Non-Skids

We are building the best tire we have ever built and doing everything in our power to help you sell it. The tire season will be longer this year than ever before. New automobile models will tempt the owner to run his car all winter.



If you carry a tire which the car owner knows is the greatest tire value he can obtain, he will conclude that you are a live dealer and will come back again, not only for tires, but for all other accessories.

It will pay you to write us for our
Dealer Proposition. Address Dept. 23

THE FISK RUBBER COMPANY

Factory and Home Office

Chicopee Falls, Mass.

Fisk Branches in All Principal Cities

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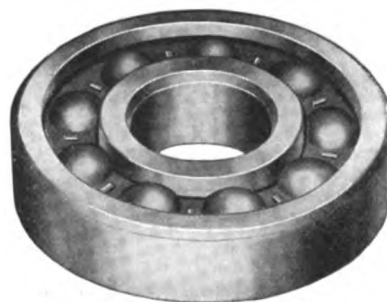
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ONCE installed NEW DEPARTURE BALL BEARINGS

American Made for American Trade

- - reduce the coefficient of friction in the rotating parts of a motor car almost to the vanishing point—not only for the time being—but throughout the life of the car.

New Departures are always productive of economies that should not be ignored.



Dealers and Owners should ask for "The Brown Book."

Repair Men and Garage Keepers will do well to read "The Manual."

THE NEW DEPARTURE MANUFACTURING CO.

Bristol, Conn., U. S. A.

Conrad Patent Licensee

Distributors in Trade Centers Throughout the United States
Sole British Agents: Brown Bros., Ltd. London and Manchester

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WESTERN BRANCH: 1016-17 FORD BLDG., DETROIT, MICH.

Overland
TRADE MARK REG.



24 Hours A Day

THIS night scene shows a small section of the construction work now in progress at the Overland plant.

Our contractors are working 24 hours a day to give badly needed production space.

Although we now have a maximum production of 630 cars per day, the demand for Overland cars requires even greater capacity.

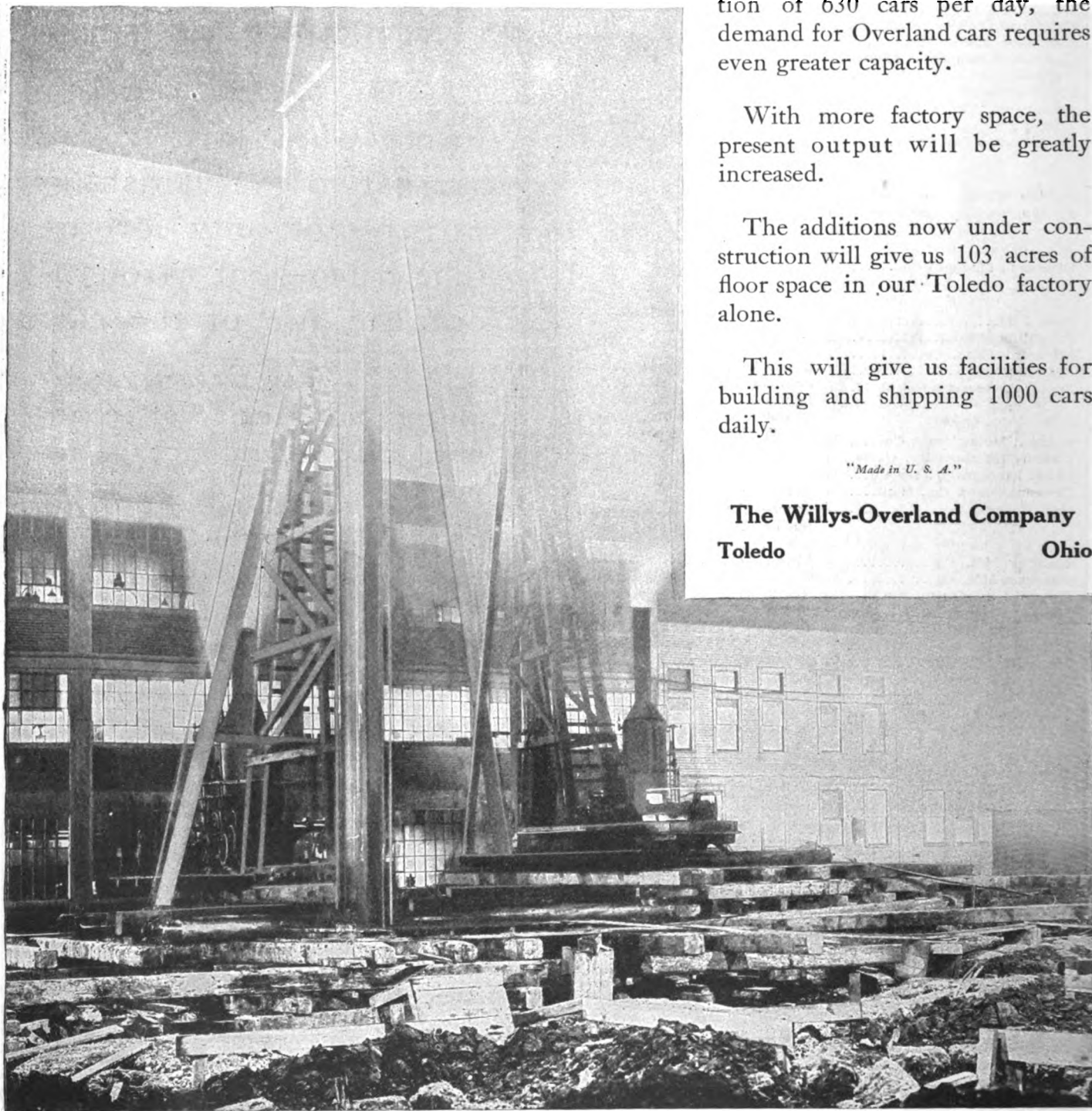
With more factory space, the present output will be greatly increased.

The additions now under construction will give us 103 acres of floor space in our Toledo factory alone.

This will give us facilities for building and shipping 1000 cars daily.

"Made in U. S. A."

The Willys-Overland Company
Toledo Ohio



When writing advertisers please mention Motor World

MOTOR WORLD

Vol. XLV

New York, U. S. A., Wednesday, November 10, 1915

No. 6

His \$300 Show Window Is Rapidly Paying for Itself

Wheelock, of Fargo, Finds the Road to Greater Profits
Is Not Difficult to Travel—Window Strong Magnet



The windows used to be of six panes each. Wheelock put in plate glass fronts, built a display window at the right—shown on the next page—and made use of the window at the left, back of which is a broad window seat, wide enough for a small display. In remodeling the front Wheelock used the lettering suggested some time ago by Motor World

A NEW accessory show window has just been built by the Wheelock Auto Co., Fargo, N. D., and already it is beginning to pay back the \$300 that was put into it. According to C. A. Wheelock it would more than pay for itself in six months if there wasn't an accessory sold, for, he says,

it is easily worth \$50 a month as an advertising medium.

There are better garages—structurally—in Fargo than the Wheelock garage, but there is none for miles which looks more aggressive and wide-awake than the Wheelock. It stands out at night like a straw fire on a prairie.

It has the look that brings business, and even if the garage isn't a modern up-to-date building all the way through, the customer—regular or transient—never regrets that he stopped there. The aggressiveness that is responsible for the new window sees that the trade is taken care of.

Until a short time ago the garage had a brick front in which were plain, ordinary windows on each side of the entrance driveway. Then Wheelock noticed the Campaign for Greater Profits in Motor World and at once took steps to cash in on the idea.

The windows were not enlarged, but the then existing windows were moved back 5 ft. and made the back of a show window. New plate glass was put in the front and the floor of the window was made to slope at a slight angle.

Good Lighting a Feature

Fixtures overhead were arranged to throw a strong light down upon the display at night, which sets it off in a remarkably effective manner. At the left of the driveway, entering, a new window also was built in. This side is the office and supply store, and display arrangements are planned for this show window.

The whole job cost \$300, and while it has not been in operation long enough for the company to determine the actual increase in business from this department, the window's business is certain. Customers frequently walk in and ask for something they have seen displayed. One man bought the only one of a very large size of wrench. It had not been thought this wrench would sell, but it was put in with the other wrenches—and it sold.

In the office is a show case, which also



The front part of the garage office is used as an accessory store. The goods are kept in neat order. Note the W A Co made of spark plugs. With the window in front and the show case in the office the appeal to the customer is doubly strong

sells goods. The stock is kept up attractively, and Wheelock says the accessory department pays better than any other department of the business. Plans for its extension are being considered.

The stock of accessories, which includes car parts, is inventoried at about

\$3,600; tires, \$2,700; gasoline and oil, \$250; acetylene tanks, \$150; paint and materials, \$150.

"The garageman who overlooks accessories," said Wheelock, "is overlooking his best bet. Every car owner needs them and will buy them. They should



This is the window shown at the right on the preceding page. The six panes at the back of the window used to be the front window. The overhead lamps at night throw a strong light upon the display. The window sells goods

be displayed and displayed neatly and cleanly. I see a great future in our accessory department. Motor World has given us many good ideas, and we are glad we found this one."

The Wheelock business is accounted on the square-foot basis, which is used by dealers in Rockford, Ill., and was described some time ago in Motor World. The overhead is accounted for to the last

penny, and each department is made to show what it is doing. Accessories of themselves have not thus far been carried as a separate department. Parts are included with them.

A Garageman's Initial Order for a Specified List of Parts

Editor, Motor World:—

Will you please have prepared for us a suggestion for an initial stock of parts under the following four headings:

- (1) Supply of magneto and coil parts\$17.50
- (2) Brake band lining, 25 ft. ea., 6 sizes..... 32.50
- (3) Assortment of copper

- gaskets 6.00
- (4) Assortment of spring washers, machine screws, machine nuts, cotter pins and taper pins..... 20.00

Herewith is the list for which you asked. You will find a complete though necessarily limited assortment under the various divisions. It is suggested that these parts be entered on perpetual

inventory cards so that instant information will be available as to the condition of the stock. With a stock of this size it is imperative that nothing be permitted to run out. Immediately the stock

of any part commences to run even a little bit low, a fresh supply must be ordered. The list was especially prepared by Reinhard Bros. Co., Minneapolis, Minn.

MAGNETO PARTS	
Quantity	Part
1	No. 5 long platinum screw.....
1	No. 6 short platinum screw.....
1	No. S48 adjusting screw.....
1	No. S33 adjusting spring.....
1	No. RD47 contact screw.....
1	No. RD48 contact screw.....
1	No. 6806 short contact screw D. M.....
1	No. 6809 long contact screw.....
1	No. 802 breaker arm "T".....
1	No. 2598A breaker screw "T".....
1	No. 313A breaker bar "D".....
1	No. 2598A breaker screw "D".....

List	Discount	Net
\$1.14	20	\$0.91
1.14	20	.91
2.00	25	1.50
2.00	25	1.50
2.00	25	1.50
2.00	25	1.50
2.25	20	2.00
2.25	20	2.00
2.50	25	1.88
2.00	25	1.50
2.50	25	1.88
2.00	25	1.50

\$18.58

COIL PARTS	
2	Tungsten contact points for regular Ford coils, pair.....
2	Master vibrator platinum contacts, pair.....
3	Coil rivet points, suitable for vibrating coils, each .70.....
3	Magneto rivet points suitable for coils, each 1.10.....

List	Discount	Net
1.00	20	.80
3.00	20	2.40
2.10	30	1.47
3.30	30	2.31

\$6.98

BRAKE LINING	
25 ft. 1 1/2 x 3/16.....	70
25 ft. 1 3/4 x 3/16.....	70
25 ft. 2 x 3/16.....	70
25 ft. 2 1/2 x 3/16.....	70
25 ft. 1 1/2 x 5/32.....	70
25 ft. 2 x 5/32.....	70

List	Discount	Net
4.35		4.35
5.10		5.10
5.70		5.70
7.05		7.05
3.60		3.60
4.80		4.80

\$30.60

GASKET ASSORTMENT		
Assortment complete		
Assortment Includes:		
50 Assorted spark plug gaskets	8	1 3/16 x 1 7/16 closed
20 Assorted type B	6	1 1/4 x 1 1/4 closed
8 5/16 French	6	1 1/2 x 1 1/4 closed
8 1 1/16 French	6	1 9/16 x 1 13/16 closed
8 1 3/16 French	6	1 9/16 French closed

8 1 5/16 French.....	
8 1 7/16 French.....	
6 2 1/16 French.....	
6 2 1/4 French.....	
6 1 1/8 French.....	
6 1 11/16 French.....	
6 1 1/2 French.....	
6 1 13/16 French.....	
6 1 1/4 French.....	
6 1 15/16 French.....	
6 2 French.....	
6 2 3/16 French.....	
6 2 1/4 French.....	
6 2 5/16 French.....	
6 2 3/8 French.....	
24 Assorted closed large size.....	
50 Assorted spark plug French.....	
8 1 1/2 French.....	
8 1 1/4 French.....	
6 2 1/2 French.....	

8 1 15/16 x 2 3/32 closed.....	
6 1 61/64 x 2 7/64 closed.....	
8 1 x 1 1/4 closed.....	
6 2 x 2 1/4 closed.....	
8 1 1/4 x 1 1/4 closed.....	
8 1 1/2 x 1 1/2 closed.....	
6 1 5/16 x 1 1/2 closed.....	
6 1 3/4 x 1 1/4 closed.....	
6 1 1/2 x 1 13/16 closed.....	
6 1 7/16 x 1 11/16 closed.....	
6 1 11/16 x 1 15/16 closed.....	
6 1 3/4 x 2 closed.....	
6 1 13/16 x 1 15/16 closed.....	
6 1 1/4 x 2 1/16 closed.....	
6 1 1/4 x 2 1/2 closed.....	
24 Assorted large size French.....	
6 1 15/16 x 2 1/16 closed.....	
6 1 1/4 x 1 1/4 closed.....	
8 1 1/16 x 1 5/16 closed.....	
6 2 1/2 French.....	

1 Box 50 each assorted taper pins.....	.80	50	.40
5 Box 100 each assorted cotter pins.....	.16	50	.40
2 Box 100 each split brake lining rivets, 3/8 in.....	.40	50	.40
2 Box 100 each split brake lining rivets, 1/2 in.....	.40	50	.40
2 Box 100 each split brake lining rivets, 5/8 in.....	.50	50	.50
2 Box 50 assorted lock washers.....	.35	50	.35
2 Box 50 assorted cap screws.....	1.70	50	1.70
2 Box 50 assorted set screws.....	1.10	50	1.10
2 Box 50 assorted hexagon W. S. nuts.....	1.00	50	1.00
2 Box 50 assorted brass machine screws and nuts.....	1.50	50	1.50
1 Box 100 Whitney keys.....	4.75	50	2.38
50 Only 1/4 Hex. Cast. nuts.....	1.80	50-10	.40
50 Only 5/16 Hex. Cast. nuts.....	2.00	50-10	.45
50 Only 3/8 Hex. Cast. nuts.....	2.20	50-10	.50
50 Only 1/2 Hex. Cast. nuts.....	3.40	50-10	.77
50 Only 5/8 Hex. Cast. nuts.....	9.00	50-10	2.03
50 Only 3/4 Hex. Cast. nuts.....	10.00	50-10	2.25
50 Only 1/4 Hex. A. L. A. M. nuts.....	2.25	70	.34
50 Only 5/16 Hex. A. L. A. M. nuts.....	2.50	70	.38
50 Only 3/8 Hex. A. L. A. M. nuts.....	3.25	70	.49
50 Only 1/2 Hex. A. L. A. M. nuts.....	4.50	70	.68
50 Only 3/4 Hex. A. L. A. M. nuts.....	8.50	70	1.28

\$19.70

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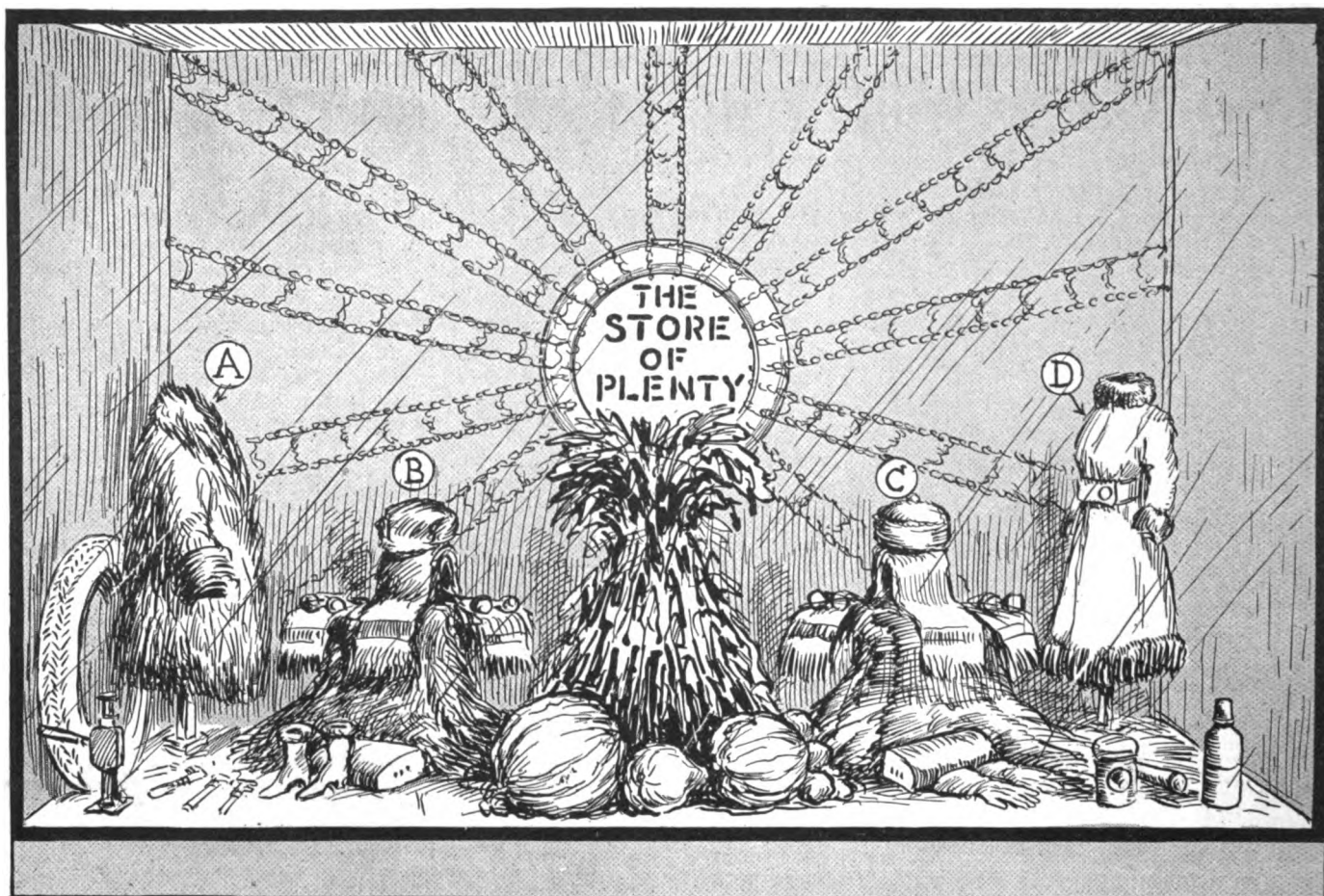
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Try This Thanksgiving Set-up in the Window



The properties for this window are easily obtainable. Aside from what is in stock, the principal necessities are a small shock of corn, a few pumpkins and some twigs and autumn leaves. The articles displayed should be those the car owner needs at this time of year. The illustration shows fur coats, caps, muffers and shoes, but if the

garageman or dealer has not these in stock, a couple of mackinaw robes may be draped over standards of some kind at A and D and some other goods may be used at B and C. And if the window is narrow B and C may be omitted. In case the construction of the building makes it difficult to put up the chains in the background, colored paper

strips may be worked in. In this autumn setting yellow or gold paper would be preferable. Leaves and twigs may be worked in in many places, according to the ideas of the decorator and the form of the window. Let it stand ONE WEEK ONLY. And, of course, put neat price tags on or near the goods.

The Northwest Has a Unique Type of Garageman

He Is the Hop-stop-and-jump Man and He Does Business in a Curious Way—Now He's Here, Now He's Gone

MINNEAPOLIS, November 5—For want of a better term he may be called a hop-stop-and-jump garageman, for, according to those who know the Northwest well, that is just what he does. In big business he might be called a promoter or a speculator, but his enterprises are not big enough to warrant any such dignified name.

He enters a town in the spring when the weather is opening up and establishes a garage. It may be mostly a repairshop or he may make it a little more pretentious and possibly secure the agency for some car.

He does business all summer, while the touring weather is good. Transients give him a certain amount of patronage, and he manages to have a fairly prosperous summer. Generally he runs the place

himself and all he has left after paying his bills is velvet.

As fall comes and winter draws near and the transient trade begins to slow up he looks around for a buyer for the business. If he can find some retired farmer or some farmer who hasn't retired but who has some loose money, the hop-stop-and-jump man considers him a prospect. In fact, anyone who seems in the market for a perfectly good running business is a prospect.

Since the garageman had little or nothing when he started in, and if he did he did not invest much, he is still further ahead by whatever he can get for the business. Next spring he starts all over again.

The movements of the hop-stop-and-jump man are best known to the jobbers

of accessories. He generally trades under his own name when it comes to ordering and paying bills; he will be buying in one town this year and will suddenly cease. Then, next spring he buys more stuff, but always in a different town.

Sometimes the man who buys the garage from the hop-stop-and-jumper hangs onto it and makes good at it. If there is a car agency attached and if there is any possible future for the garage he may build a successful business, but, on the other hand, the buyer very often "holds the sack."

It does not necessarily mean that the hap-stop-and-jump man is crooked. He may be a good trader, and trading may be legitimately conducted. There is, of course, an excellent opportunity for a perversion of facts, and it is barely possible that this occurs now and then.

How to Compete

The accessory dealer should aim to have a complete stock—to have the little things that the other fellow has not.

Did *YOU* Make Money Last Month?

How Much Will You Make or Lose in 1915?

Don't Try to Dodge the Issue—You Can't

Do you want your business to grow? Do you want to know why it doesn't grow faster?

If you are interested in your future as a dealer or garageman you should be interested in business system; if you are interested in business system you will be vitally interested in what appears below on this page.

Motor World's Simplified System of Accounting

AN accounting system for the garageman and dealer has been perfected by Motor World and is to be presented to its readers in serial form.

The series will begin November 24 and will run through about six instalments. It will be illustrated throughout. Every point will be made plain. After the series has concluded, the operator of a garage, repairshop or car sales agency should be able to install it in his business without difficulty.

Throughout this announcement and throughout the series the word "garage" will be used. But the system is not limited to a garage only. It covers garaging, repairing, oil and gasoline selling, car selling, accessory selling and all the ramifications of the retail end of the industry.

This accounting system was devised only after a comprehensive investigation had shown that there is no suitable form available for the operator of a garage. Other trades have systems, lots of them, but they do not fit the garage business. To take that of another trade and make it fit the garage business was impracticable.

The Need Is Great

Many requests were at hand for an efficient and simplified system for a garage. The operators of garages feel the need of one. They have been awakening to the fact that they may be making money in one department and losing it in another, and they have no proper method of telling them where the losses and profits are. Motor World was in a quandary as to how to meet a growing demand from many subscribers in all parts of the country for a simple and adequate accounting system. Search was made for one that would fit the case.

None could be found.

The only alternative was to devise a system—and this has been done. More than a year of labor has been performed. A system has been built up, torn down, revised and rebuilt several times. In its finished form it is simple. It will mean accuracy. It will insure efficiency in your business.

Simplicity the Aim

Simplicity was the chief aim. It was desired to produce a system that could be operated by a man who was not an expert accountant. Many garagemen, the smaller ones, have no bookkeepers, and they will have difficulty in enlarging their businesses if they use no system, or a complex system, that is not adapted to their specific needs.

Motor World's Simplified System of Garage Accounting **is all in one book**—all under one cover. It is simple in operation and certain to insure accurate results. It will show just how much has been made in each department every month and year—and this without a confusing number of journals, ledgers, sales records, cash books, etc.

It is double-entry—which sounds complicated but isn't. Double-entry is the only safe and sure method of accounting. How it has been made simple will be understood when the series begins.

No matter what system you are now using you should follow this one through. If your method gives the results you require do not change, for unnecessary change is costly and poor business.

But WAIT until the series begins. Then study it. Don't skip a week. Read each installment as it appears. Give yourself a six weeks course in garage accounting.

Association News

SEATTLE DEALERS ORGANIZE

SEATTLE, WASH., November 5—To bring about a better understanding among their numbers and to eradicate many of the evils that are impeding the progress of their business, garage-men, repairmen, accessory dealers, body builders, and dealers in oils, tires, tire repairs, parts and automobiles, have formed an association under the title of the Washington Motor Trades Association, as reported briefly last week. Thirty-five members were signed up at the first meeting, at which the following officers were elected:

President, J. E. Shellenberger; vice-president, Newton Foster; secretary and general manager, J. W. Johnson; trustees, in addition to three executives, George Carscaden, O. G. Korb, J. L. Stizrud and W. S. Pearne.

The association will conduct a thoroughly equipped credit department. A bureau of help also has been established for the interchange of ideas and systems of conducting the different lines of business. James H. Douglas, a prominent attorney, will give a series of talks on laws relating to the accessory, garage and repairshop operator.

NEW WILMINGTON BODY

WILMINGTON, DEL., November 8—Dealers have formed a permanent show association and have decided to hold the second annual show at the Hotel du Pont the week of January 17, 1916. J. H. Nixon, who was largely instrumental in planning and carrying through the first show of last year, has been appointed chairman of the show committee, and Harry M. Partington, secretary. The organization will be completed later. This association replaces the Wilmington Automobile Trade Association, which was formed last year.

WELLS HEADS LOUISVILLE

LOUISVILLE, November 6—The ninth annual show of the Louisville Automobile Dealers Association will be held February 21 to 26 in the First Regiment Armory. This was decided at the annual meeting of the organization held last night at the Seelbach Hotel. Prince Wells, who was reelected president, announced he would appoint the four regular committees, on finance, building, exhibits and installation, today, and that preparations for the show would go forward uninterruptedly until opening day. William T. Thomson was elected vice-president of the association and Philip Longest was elected secretary and treasurer. Preceding the election and business session the representatives of the

membership partook of the annual banquet.

The Overland-Louisville Co. was elected to membership in the association, being the only addition since the last show was held. There are now 17 firms members of the body, the other 16 being: Ira S. Barnett, Hite D. Bowman, Glossbrenner Commercial Car Co., Longest Bros. Co., Thomas Garage, Prince Wells Co., Yager Motor Car Co., J. I. Case T. M. Co., Standard Auto Co., Kentucky Auto Co., Monarch Auto Co., Electric Garage Co., Bywater-Ortner Motors Co., Motor Sales Co., Southern Motors Co. and Leyman Motor Co.

WANT K. C. ON HIGHWAY

KANSAS CITY, November 6—E. F. Peake, secretary of the Automobile Dealers Association, has just returned from a visit to the section between Kansas City and Joplin along both suggested routes for the projected Jefferson Highway. Peake's visit was for the purpose of arousing interest in the highway improvement and seeing that delegates were selected to the Jefferson Highway convention which meets in New Orleans November 15 and 16; the delegates will favor including Kansas City on the proposed highway.

SPRINGFIELD WANTS SHOW

SPRINGFIELD, MO., November 6—The Springfield Automobile & Accessories Dealers Association is making plans for a show in Springfield during the winter. At a recent meeting officers were elected as follows: President, John C. Hastie; vice-president, Al White; secretary, C. K. Curran, and treasurer, George W. Culler. A committee was appointed to make the preliminary arrangements for the show and another committee to secure new members for the association and put it where it can do some good for the cause in Springfield.

CLOSE SUNDAY IN BALTIMORE

BALTIMORE, November 6—Arthur Stanley Zell, of the Zell Motor Car Co., distributor of Chalmers, Peerless and Rauch & Lang electrics, was elected president of the Baltimore Automobile Dealers Association at the annual meeting of the association. W. F. Kneip, Franklin Motor Car Co., Franklin distributor, was elected vice-president, and the office of secretary-treasurer went to E. R. Myers, of the Motor Car Co., Overland representative. The board of directors of the association is made up of the officers and R. J. W. Hamill, of the Packard Motor Car Co., and F. S.

Bliven, of the Standard Motor Co., Cadillac distributor. H. M. Luzius, secretary of the Automobile Club of Maryland, continues as general manager of the association.

The question of keeping the automobile showrooms in Baltimore open on Sunday was taken up at the annual meeting. After considerable discussion it was decided to keep them closed in order that the salesmen may have one day a week off.

THORPE HEADS CHAMPAIGN

CHAMPAIGN, ILL., November 6—The Champaign (Ill.) Automobile Trade Association, recently organized to promote the welfare of the dealers, increase profits and eliminate evils, has elected the following officers: President, J. C. Thorpe; vice-president, Harry Herrick; secretary-treasurer, C. B. Wiggins. These with E. V. Kirby, F. S. Cannon and E. L. O'Neil, constitute the board of directors. A dinner, smoker and program of addresses was held Tuesday evening at the Inman Hotel at which the dealers discussed measures for mutual welfare. Similar gatherings will be held from time to time.

PORTLAND REVISES BY-LAWS

PORTLAND, ORE., November 6—The Portland Automobile Trade Association is preparing to revise its constitution and by-laws so that it may be converted into a social organization. It is planned to have several sections for car dealers, accessory dealers, tire dealers and garagemen, respectively, and these sections will meet separately to discuss their own problems. The parent body will be principally a social organization. Ed Johnstone, A. H. Brown, Frank C. Riggs and Fred Dundee form the committee which will revise the constitution and by-laws.

MICHIGAN SERVICE BODY

DETROIT, November 6—Following the formation of a service managers organization in Indianapolis, a similar body, styled the Automobile Service Managers Association of Michigan, has been formed in Detroit and the following officers elected: President, C. R. Lester (Packard); vice-president, E. P. Rippengill (Hudson); secretary-treasurer, E. H. Hazleton (Regal). The executive committee consists of J. L. Kenyon (Cadillac); H. G. Fitch (Overland); C. W. Matheson (Dodge); Chas. Gould (Maxwell) and Pierre Schonn (G. M. C.). Meetings will be held monthly.

ST. LOUIS CREDIT BUREAU

ST. LOUIS, November 6—Dealers here have formed the Automobile Credit Bureau for the purpose of supplying members with the credit rating of cus-

tomers. More than 30 dealers already have become members. Credit data is to be supplied by members and kept in a card index system. The bureau expects to cooperate with the St. Louis Credit Bureau.

PROVIDENCE SHOW NEXT

PROVIDENCE, R. I., November 8—The annual motor show of the Rhode Island Automobile Dealers Association will open next Friday night at the State Armory. It will continue through until a week from Saturday night, thereby giv-

ing the dealers the advantage of two real Saturday nights of work, the opening on Friday allowing for the big throng that gathers on opening night when free tickets are given out.

BALTIMORE SCHEDULES SHOW

BALTIMORE, November 6—January 18 to 22, inclusive, has been set at the date for the 1916 show for Baltimore. It will be staged by the Baltimore Automobile Dealers Association and the Automobile Club of Maryland in the Fifth Regiment Armory.

Need for a National Association of Dealers Now

Results Can Be Accomplished Only Through Organization, Says

Thorpe—Appeals for Cooperation of Trade's Well-wishers

Editor Motor World:

Following up the very excellent letter in the interest of a National Federation of Automobile Trade Associations, appearing in a recent number of Motor World, by Mr. R. B. Simning, assistant secretary of the Minneapolis Automobile Trade Association, a further discussion of the subject seems most desirable. It is to be hoped that sufficient interest will be aroused that such an organization of the retail interests of this great and growing industry will very soon become an accomplished reality.

The success of the suggested organization must primarily rest upon the permanence and enterprize of the local trade associations, whether these are composed of groups of dealers and garage owners of the larger cities or centers of population, or of the more widely separated interests that comprise the county trade associations. In the distinctly agricultural states of the middle west, the latter unit is of primary importance. And, because of their relative importance, the problems of the dealer and garage owner, which indeed are common to every one so interested in the industry, deserve special attention from the point of view of the local or county association.

The motive that has prompted the initial move toward the organization of trade interests in the past has been a mutual desire among the promoters to secure a policy of price maintenance covering the sale of cars and accessories at the advertised list price, a uniform rate for garage storage, etc.

In many instances this has been the corner stone upon which it has been attempted to build a trade association. The motive is entirely wrong in the usual case of open antagonism to the supposed "pirates," who are guilty of price cutting, but whom it is hoped to convert, by drawing into the association, for two reasons.

Why Price Plans Fail

First—No man in business and self-satisfied with his policies will peacefully listen to dictation from others whom he may regard (and in most cases with reason) as guilty as himself.

Second—The "price cutting" problem will solve itself in the certain ultimate elimination of the "pirate" from the business. A legitimate net profit is essential for the permanence of any business enterprise. This motive in organization is justifiable only as it is tempered by a policy of accomplishing results by education.

If this plank in the platform of automobile trade associations can be definitely placed

in the background in the beginning; if it can be lost sight of in a combined and friendly interest in the solution of other problems of great importance, one of the greatest disrupting factors will be overcome.

But, what are some of the other problems of absorbing interest?

There can be no goal more satisfying in its attainment than the establishment of agreeable and mutually profitable relations between the manufacturers and the retail dealers and garage owners. Can this be brought about by the perpetual grouch of the individual who is convinced that the factory is trying to continually "harpoon" him and "make him like it"? Is it not possible that the factory is unacquainted with actual retail conditions throughout the country or that relations and policies that exist are the result of the youth of the industry and an absence of long experience as a basis for the best procedure. Is it not reasonable to suppose that the factory appreciates the importance of the dealer and garage owner as a very definite part of his organization and that he therefore must show a willingness to cooperate in the solution of common problems?

The Individual Is Powerless

Can the dealer or garage owner expect to exercise sufficient influence as an individual to secure a hearing, except as it is the echo of concerted action on the part of all of those interested with him, in the welfare of the merchandising branch of the industry? A crystalizing of a healthful sentiment and concerted action thus inspired can insure success where individual effort must fail.

No stronger proof of this argument is needed than the present interest of the National Automobile Chamber of Commerce in a revision of the policy of mid-season announcement of new models of motor cars. The confusion among sellers and purchasers that has resulted from this regrettable practice is too well understood to need discussion. It is probable that the present system of new model announcement and subsequent factory production will undergo a material revision within the next few months, resulting in a bigger and better business for the dealer and garage owner as well as for the manufacturer. If success is achieved in bringing about this change it will be due to no greater factor than the concerted efforts of the large number of successful trade associations throughout the country reflecting the sentiment and opinions of the individual members. No material influence could have been exerted by mere individuals.

[The N. A. A. C. has stated that it has been found impossible at the present time to recommend a uniform time for new model announcements.—Editor.]

Of similar, if not equal, importance, are the problems of rational automobile legislation, road building and improvement, and relating more specifically to the individual, a reasonable interpretation of the much abused word "service."

It is clear that these subjects, and many others, are live issues wherever automobiles are bought and sold. They also suggest cooperation in the relations between dealers and garage owners and the manufacturers. The problems themselves invite cooperation and their successful solution will be accomplished by a sane and businesslike organization of local, state and national associations. The stability of these associations will be assured by the increasing realization of the individual that the permanency, profit and pleasure of his own business are enhanced by a closer acquaintance with those of like interests.

It's a Great Big Job

The organization of an association, national in its scope, is a tremendous undertaking, requiring a deep and broad foundation of concentrated faith, energy and resources of the smaller trade units. If this is true, and its truth seems evident, a concerted effort needs to be made to organize the county or local units, to rejuvenate "back-sliding" associations and to bind these associations together in live, going, state or district organizations. It will require the expenditure of unfailing brains as well as money, and in the final analysis these brains must be fired first with local enthusiasm and the funds must be supplied from the pockets of the individual dealer and garage owner.

This having been accomplished, the national organization may soon become a living reality, and a mighty power in the development of this great industry. It will provide a ways and means for securing and maintaining satisfactory relations between dealer and manufacturer, for promoting desirable federal and state legislation and obstructing the passage of laws dangerous to the industry, and all of these things it will make possible with economy of energy, time and money. Behind the movement and furnishing its power will be the best brains and life blood of the host of country dealers in the smaller towns and cities operating a public garage and sales department, as well as the larger influence and resource of the distributor and jobber in the larger centers of population, all combined in a great co-operative plan to build a bigger and better business.

Results Should Come Soon

As a means of solving the educational problems of organization, looking forward to a national movement and for the purpose of more perfectly unifying efforts in this direction, it would seem desirable that the present interest in the work should soon result in the assembling of representatives from various local and state associations at some convenient point, to confer respecting ways and means. Such a group, alive with spirit of cooperation and inspired by an interchange of ideas and collective reasoning, would be able to crystalize the rapidly growing movements now on foot into a strong parent organization.

The time seems ripe for such a work. Let every dealer and garage owner give of his thought, time and money in a united effort to quickly and economically solve the trade problems common to all and to build a "bigger and better" automobile business.

The trade papers can exert a strong influence for good in this connection. They

deserve commendation for their meritorious work now going on.

Yours truly,
J. C. Thorpe,
Chairman Dealers Division, Garage Owners
Association of Illinois.
Urbana-Champaign, Ill.

Trade Federation Would Be Benefit

Des Moines Secretary Emphasizes Urgency of National Organization of Ununited Trade Associations

Editor Motor World:

In your issue of September 29 there appears an article from R. B. Simning, assistant secretary Minneapolis Automobile Trade Association, with reference to a national association.

Simning asks for suggestions, but so far I have failed to notice any replies to his letter, and it must be that each interested party is waiting for some one else to start the ball, as surely there have been a number of men read the article who were heartily in sympathy with Simning's suggestions.

There is no question in my mind but the only way to accomplish any great good is through the establishment of a national association, and that the time is here to get together on a move of this kind.

Each city or town should have their local association, which association should affiliate with a state association in their own state, and all state associations affiliate with one national association.

Matters coming up in local associations that needed to be handled in all other locals could be referred to the state association, the state association would get action among the other locals, and some concerted action in the state be adopted; then the state associations could refer their questions to the national in the same way, and we would soon be in a position to bring the combined force of the U. S. to bear on any question that we were having difficulty in handling.

Suppose we had been organized in this way a few months ago, when a few local associations sent a petition to the National Automobile Chamber of Commerce requesting somewhere near a definite time of announcing new models of cars be made, and got no support; if this matter had come to the factories from a national organization, carrying a request from several thousand associations, instead of a few dozen associations, I think there would have been some consideration given it.

In every state there are matters of legislation that some of the local associations would like to have passed or changed, but what can one or two local associations do in the matter of state legislation? If they had a state association and wanted something passed, the locals interested could take it up with their state association and the state take it up with the other locals, and in a month could have an expression from every city and town in the state.

A great deal of the work would be done in correspondence, but about twice a year there could be a state meeting, at which each local association would send one representative to the state association, and the state association should be provided with sufficient funds to pay the expenses of such delegate while attending the session, and each representative would return to his local and report what was done in the state meeting.

Each state would also elect one, or perhaps in some cases two, representatives, who would attend the national meeting once or

twice a year in the same manner, and in this way we would work up a feeling of good fellowship that would carry great weight throughout the whole nation.

Another point that should be covered would be the use of a uniform name, so that we would understand that this name applied to all organizations connected with the national, and unless such name be used there was no connection, as one of the principal weak points of the associations we now have is that they run too much on the independent, stand-alone plan.

The question will arise, can both the car dealer and garageman become members of the same association? and I should say YES. The interests of the garageman and the car dealers are so near alike, or should and would be if they understood the business, that there is no reason why they should have separate organizations.

The Illinois Garage Owners Association has had this idea for some time, and it was with that thought that the Associated Garages of America was formed in Chicago last January; possibly we have in this organization just what we are looking for. These things would all have to be worked out, but I am of the opinion that it would not take a committee of experienced organization men long if they got together on the matter to formulate a constitution and by-laws that would give a movement of this kind a big start.

N. T. Miller, Secretary,
Iowa Automobile Business Association.
Des Moines, Nov. 4.

Call Sent Out for A. G. A. Convention

Tells History of Garageman's National Body Since It Was Formed—Progress Made in Brief Period

CHICAGO, November 9—The call for the annual convention of the Associated Garages of America, to meet in this city, January 26 and 27, has been issued and incorporates a history of garage organization work in the United States during 1915. Progress has been made and the movement is progressing. January 25, the day before the A. G. A. convention, the Illinois association will meet in the same hotel. The call follows:

Announcement of the second annual convention of the Associated Garages of America, to be held at the Congress Hotel, Chicago, January 26 and 27, 1916, at the time of the Automobile Show.

E. J. McQuirk, National Organizer, will have full details of the convention work in charge. The past year has been devoted mostly to organization work. At the time of our first convention, when the organization was perfected, there were individual members from 18 states present. The only states that had state associations at that time were New York and Illinois.

Since this convention the State of Michigan has been organized and has held two very successful conventions, one May 22, at Detroit, at which time they voted to apply for a charter and affiliate with the Associated Garages of America, and one on October 7, at Grand Rapids, which showed a large increase in membership and good progress.

On March 10, 70 automobile dealers assembled at Des Moines, Ia., and formed the Iowa Retail Auto Dealers Association, and at their convention on August 31 and Sep-

tember 1, 1915, they voted to affiliate with the Associated Garages of America.

On October 8 and 9, at Peoria, the Garage Owners Association of Illinois held a very successful convention, there being a large delegation present. Reports from committees and officers showed that splendid work had been accomplished through this organization, which is in its second year of existence. They voted to affiliate with this association in January, 1916.

On October 26 and 27, under the auspices of the Columbus Garage Owners Association, some 125 garagemen from different parts of the State of Ohio assembled and after two days of hard convention work the Garage Owners Association of Ohio was formed, and they voted to affiliate and apply for a charter for Ohio from the Associated Garages of America.

On January 4, 1915, before our first convention, a delegation in the State of New York assembled at the Continental Hotel in New York City and at that time formed the United Garage Associations of New York State. At their meeting, held September 14, they voted to affiliate with the Associated Garages of America.

Early in May the Garage Owners Protective Association of San Francisco, one of the strongest local associations in the country, applied for a charter for local membership in the Associated Garages of America.

At the present time, under the auspices of the Indianapolis Garage Owners Association, Indianapolis, Ind., and with the assistance of our national organizer, E. J. McQuirk, plans are being formulated to hold a convention of garage owners and dealers in Indiana for the purpose of bringing about a state association.

Our association has a large general membership which is composed of individual garage owners throughout the country in cities where there is no local or state association. We wish that garage owners in states where there is no local or state association who wish to assist in organizing an association in their respective states would correspond with our national organizer, E. J. McQuirk, 333 South Dearborn street, Chicago, who will lend them assistance in carrying on this work.

There exists throughout the country many local associations known as Garage & Repairmen's Associations, Dealers Associations, Automobile Trade Associations and Supply Dealers Associations, which come within the field of the Associated Garages of America, owing to the fact that they have garage owners for members, and as rapidly as possible the Associated Garages of America is placing before them the benefits that can be derived by affiliating with the Associated Garages of America.

The work during the past year has been largely organization work, but we sincerely hope that our association, which represents the GARAGE industry, the retailing of automobiles, and the retailing of automobile supplies, will be able to work in harmony with the National Association of Automobile Accessory Jobbers, as well as the Motor and Accessory Manufacturers Association, with the object of bettering the industry in general and placing it on a legitimate basis, the same as other old line trades are enjoying.

There are many other objects in view, and at our next convention committees with strong business men as chairmen will be elected to discuss ways and means to bring about reforms in the business. It is hoped that the year of 1916 will bring about a much stronger and larger association throughout the country and that the prosperity of the automobile business will have been greatly increased and placed upon a higher plane of business principles.

78,000 at the Los Angeles Show

Flowers and Cars Mingled in Coast's Exhibition—Business Greatly Stimulated

LOS ANGELES, November 5—Credit for California's most successful automobile show must go to the Motor Car Dealers Association of Los Angeles. A show has at last been staged on the Pacific Coast which ranks with the salons of the East.

The eight-day Broadway Automobile and Flower Show, which came to a close at midnight last night, eclipses anything of the kind ever before attempted on the Pacific slope and is claimed to have outdone any automobile show ever held west of Chicago. Not only was the Broadway Automobile and Flower Show a great success from the standpoint of retail sales, but from the standpoint of the distributor as well. There were 78,000 paid admissions. It is claimed that a quarter of these were prospects, as only those interested in motor cars attended the show.

Pleasure cars only were exhibited. Floor space sold for 50 cents per sq. ft. Many firms were unable to secure space the last ten days before the opening of the show. The expenses of the show were heavy, but with several thousand dollars cleared for the association another show under the same auspices is assured for next season.

Dealers Did It

A great feature of the show was the floral display. The entire third floor of the great building was given over to the display of the rarest California blooms and the floral scheme was carried out in the decoration of the floors on which the cars were exhibited. It is claimed that never again will a Los Angeles motor show be a success without the floral features.

For many years the annual Los Angeles show has been promoted by a private party. Shows have been held in the suburban towns. In Pasadena, a town of less than 25,000 population, two shows are held at about the same time by rival interests. Early this season, Ed. F. Harris, manager of the Los Angeles branch of the Cole Motor Car Co., suggested that the dealers hold their own show. With the backing of the Los Angeles Times, the dealers appointed their own committee and selected Councilman J. S. Conwell, formerly a prominent dealer and member of the association, as manager. Ralph C. Hamlin, Perry H. Greer and Earle C. Anthony were placed upon the executive committee to represent the association.

Held in the very center of the city, on Broadway, directly across from the

City Hall, the Broadway show drew the largest crowds of any show ever held in the West. Ten minutes after the doors opened the building was filled with 5,000 persons. On the first day there were almost 10,000 paid admissions. The heavy gate kept up all week. On Motion Picture night, when the stars of filmdom were present to grace the exhibits of their favorite cars, there were 12,000 admitted at the doors, and at 9 o'clock the ticket sellers were instructed to sell no more.

5,000 Sunday Visitors

An admission fee of 25 cents was charged. Exhibitors were sold books of 25 tickets at \$3.75. Passes were issued to the exhibitors for visiting dealers and members of their organizations according to the amount of floor space used.

Doormen issued demonstrators' passes which were good at the rear entrance only for one hour. When these passes were issued the demonstrator's badge was taken up and returned only upon his return within one hour. All exhibitors, officials, demonstrators, salesmen, attendants, working newspaper men, and all those connected with the organization, were supplied with a season pass which accompanied a badge, and at no time was one honored without the other.

The show opened at 2 o'clock, Saturday afternoon, October 23, and ran continuously from 10 a. m. to 10:30 p. m., including Sunday, up to midnight Saturday, October 30. The limited number of passes issued encouraged the attendance of prospective buyers, and dealers who exhibited claim that no show ever held in Los Angeles, even in the early days of the industry, produced such wonderful results.

It was believed that the Sunday attendance would be far below that of the opening day, but 5,000 were checked in at the doors by 9 o'clock that evening. Sacred concerts rendered by two orchestras were the feature of the show on Sunday, both afternoon and evening.

The store windows in the building were sold at auction to exhibitors in addition to the regular floor space purchased. In one window the Cadillac was exhibited with living models in the car. The famous "Death Valley Dodge" was displayed in another window, while moving pictures of the last trip of the Dodge were exhibited in a miniature theater on the main floor just in rear of the Dodge space.

The Paige was shown in one of the windows. A painting of the Paige fac-

tory running at night full blast was the scenery background. In the other show window the Cadillac was shown with the cups offered as prizes for the floral exhibits entered by amateurs.

From the first day of the show agents from the wide territory served by the Los Angeles houses began to show up among the visitors. Many of the suburban dealers brought prospects with them, and one agent from Whittier sold four cars on Monday afternoon. By Tuesday the exhibitors were feeling the result of the show. W. J. Burt, the Auburn distributor, sold nine cars for cash off the floor and had something like 40 retail prospects lined up. His sales cleaned him out of cars completely and he accepted a bonus of \$25 and delivered his only demonstrator, and the one car he had in the show was delivered this morning.

Ralph C. Hamlin, Franklin, Scripps-Booth and Rauch & Lang dealer, exhibited cars owned by private parties with the single exception of the Rauch & Lang electric.

Walter M. Brown sold his three Stutz models on display and took orders for six more. Eleven Chandlers were sold at retail. Harris Hanshue placed nine Apperson models at the show, each order being accompanied by a check for the entire amount. Lynn C. Buxton sold three carloads of Moon cars and is now driving an old model while waiting for a next shipment, having delivered his show cars this morning.

Many Dealers Appointed

William E. Bush sold six Pierce-Arrows and J. Murry Paige, the Locomobile manager sold four cars and says he is now working on next season's business having sold the entire allotment for the season.

The Maxwell and Dodge lines were well represented in the sales column. No less than 40 cars of each make were sold during the week at retail and a great number were taken by agents.

A large number of new agents were appointed at the show, something that has never been done before at a Los Angeles show. The Broadway show took up the appearance of one of the great eastern shows and Los Angeles was virtually the motor car capital of the great Southwest during show week.

The Greer-Robbins Co., southern California and Arizona distributor of the Hupmobile and Chalmers, held the annual dealers' dinner during the show and the convention was a great success. After the dinner the agents, almost 100 in number, attended the show in a body, some remaining for several days. There were a great many factory officials present at the Los Angeles show. The Lord Motor Car Co., southern California and Arizona Maxwell distributor, also held a dinner and convention for their agents

during show week, which was attended by half a hundred live wires of the automobile industry coming from all over southern California and Arizona.

The Oldsmobile, Chevrolet, Packard, Haynes, Dodge, Hudson, Mitchell, Oakland, Chandler and many others had agents at the show from all over the territory, although they attended individually instead of coming in a body as did the Chalmers, Hupmobile and Maxwell men.

The Los Angeles dealers declared that they will show again in Los Angeles next year in the big show under the same auspices whether their factories take any interest in the salon or not. The dealers are agreed that the day of the small-town show in Los Angeles is past and the small-town show in the small town is also a dead one.

Members of the association stand firm on the demand for one big show, held in the center of the city in the fall.

The last week in October seems to be the best time for a show in Los Angeles. The orange growers, who purchase cars annually in southern California to the amount of about \$5,000,000, have their money in the banks for the last year's crops and are able to judge what the crops will be for the coming season. The walnut growers have just finished harvesting their crops. The beet and bean growers have their money and the motion picture people, who buy cars in great number each year, have returned from their vacations and are looking for the latest models to spring at the holiday season.

Some Dealers Who Attended

The Maxwell dealers who attended the show were:

George C. Boehme, Santa Monica; Rockwell & Sidnam, Anaheim; John McCool, Palms; J. D. Meyer, Alhambra; G. H. Young, Gardena; Walter Griememann, San Bernardino; R. E. Dalrymple, Paso Robles; Lawler & Begg, Long Beach; E. E. Booth, Pomona; W. F. Hubbard, Bakersfield; J. E. Adamson, Colton; L. R. Ayers, Redlands; J. M. Dredford, Rialto; W. J. Long, Whittier; E. Grace, Pasadena; W. F. Muffelman, Bishop; E. A. Poe, Covina; A. L. Luce, El Centro; C. F. Little, Hollywood; W. S. Magee, Inglewood; O. N. Manning, Monrovia; E. J. Boeske, Santa Barbara; Charles B. Perry, Santa Ana; Lierly & Son of Taft, Cal.; C. Nicolls, Lompoc; H. N. Burton, Chino; M. L. Sellers, Glendora; Charles Shaw, Santa Maria; J. W. Kemp, Riverside; C. H. Kemm, San Luis Obispo; A. L. Drake, San Pedro; Charles W. Schaack, Montebello; L. C. Thompson, Ontario; George W. Young, Fillmore; W. E. Foster, Douglas, Ariz.; James H. Hankins, Tucson; C. B. Brown, Globe, Ariz.; Arthur Hendey, Prescott, Ariz.; S. N. Holman, Wilcox, Ariz.; M. G. Wagner, Kingman, Ariz.

The Chalmers and Hupmobile dealers attending the Broadway Automobile and Flower Show and annual dealers' dinner tendered by Greer-Robbins Co. to dealers in the territory which includes the eight southernmost California counties and the State of Arizona were:

E. E. Angell, Anaheim; E. E. Booth, Pomona; Anderson & Eichler, Corona; A. B.

Barkman, San Francisco; I. C. Bachelor, Ocean Park; C. E. Bliss, El Centro; Babbit Bros., Flagstaff, Ariz.; C. Baldwin, Long Beach; H. C. Bliss, Holtville; Bryden & Shank, Brawley; B. Polson, Williams, Ariz.; H. C. Bender, Monrovia; Ralph H. Clark, Hollywood; J. H. Cable, Bakersfield; C. G. Cowden, Bakersfield; A. E. Cox, Hemet; W. R. Carr, Fillmore; Wm. N. Congdon, San Juan Capistrano; W. Campbell, Ontario; J. S. Catlin, Santa Barbara; C. J. Funk, Redondo Beach; Greer & Mapson, San Diego; A. B. Gilbert, Riverside; H. H. Glass, Ventura; A. P. Huntquist, Huntington Park; R. E. Hathorn, Compton; F. W. Garwood, Satcoy; R. P. Huff, Corona; F. E. Harvey, Santa Paula; Floyd J. Hickey, Carpinteria; L. J. Garriss, San Pedro; J. F. Hankins, Tucson, Ariz.; W. Harvey, Cucamonga; R. Longfellow, Hermosa Beach; E. C. Loomis, Arroyo Grande; R. Lennox, Inglewood; Linz Sanborn, San Francisco; W. L. Morgan, Monrovia; Charles Magby, Ventura; Moon Bros., Azusa; T. W. Marsh, Bakersfield; W. McLaws, Holbrook, Ariz.; W. M. Milligan, Whittier; T. H. McKevitt, Globe, Ariz.; A. G. Obernolte, Beaumont; Printz & Witzig, Buena Park; H. E. Rees, Whittier; J. B. Reeves, Fullerton; A. L. Ryder, Pasadena; L. Straight, San Pedro; J. M. Slaughter, El Monte; F. B. Sibley, Moneta; P. C. Staples, Oxnard; J. F. Swank, Santa Ana; B. C. Sherer, Placentia; William Taggart, Redondo Beach; Homer C. West, Hollywood; J. H. Walker, Fillmore; E. Yelland, Alhambra; J. H. Cable, Bakersfield; Peter Conney, Colton; R. E. Smith, Needles; Jack Ainsworth, Phoenix, Ariz.; Walter Du Bois, Earl Higgins, Christy Walsh, F. P. Harris, Jack Poerner, Tom Herndon, Perry H. Greer, A. C. Robbins, George Smith, Erdman Brant, Nelson Lally, Martin Conner and Dale Carlton, of Los Angeles.

The Car Exhibitors

Beekins-Speers Motor Co., Haynes and Grant; Earle C. Anthony, Inc., Packard and Reo; Greer-Robbins Co., Hupmobile and

Chalmers; William E. Bush, Pierce-Arrow; Pioneer Commercial Auto Co., White; Harold L. Arnold, Hudson and Dodge; Chevrolet Motor Co. of California, Chevrolet and Monroe.

Cole Motor Co., Cole; Apperson Motor Co., Apperson; Colyear Motor Sales Co., Regal; Don Lee, Cadillac; Oldsmobile Co. of California, Oldsmobile; William R. Ruess, Mitchell; California Electric Garage Co., Detroit electric; Washington Street Electric Garage Co., Ohio electric.

Empire Motor Sales Co., Empire; Lord Motor Car Co., Maxwell; Smith Bros., Paige, Premier and Peerless; Ralph C. Hamlin, Franklin, Scripps-Booth and Rauch & Lang electric; W. J. Burt Motor Car Co., Auburn; Beardsley Electric Co., Beardsley electric; Walter M. Brown Co., Stutz; Pacific Kissel Kar Branch, Kissel Kar and Briscoe; Hawley, King & Co., National and Oakland.

Saxon Motor Sales Co., Saxon; Irving Motor Sales Co., Enger; C. S. Anthony, Glide; Electric Vehicle Co., Milburn electric; Locomobile Co. of America, Locomobile; Chandler Motor Car Co. of California, Chandler; Lynn C. Buxton, Moon and Lexington; English Motor Car Co., King; Eugene Schuler, Allen; Carlton, Faulkner & Bowles Co., Fiat, McFarlan, Marmon and Jeffery.

Accessory Exhibitors

Garage and Repairmen's Association, Eugene M. Tilden, Stulken Safety Signal, Western Auto Electric Corp., Master Carburetor Co., Wilson & Willard, E. R. Holman Co., Miller Mfg. Co., Pacific Ball Bearing Co., Ensign Carburetor Co., Electric Equipment Co., Hunt Engineering & Sales Co., Auto Sheet Metal Works, Puente Oil Co., Norwalk Tire Sales Co., Lamb & Dowell, Auto Trade Directory Co., Bentel & Mackey Top Co., Lar Win Traffic Signal Co., C. A. C. Lubricants Co., A. Hamburger & Sons Accessory Department, Acme Electric Auto Works, Pull-U-Out Sales Co., Gomor Sales Co., Boyle Dayton Co., Firemen's Fund Insurance Co., Ventrua Gasoline Co., Putnum & Valentine.

Prest-O-Lite Camp-fire Makes Appeal to Hunter



This window was installed in the Omaha branch of the Prest-O-Lite Co. by Branch Manager E. E. Edgecomb. At the right—the old way—is a pile of charred sticks with a coffee pot "boiling." At the center—the new way—is a Prest-O-Lite Hot Plate, which is that company's modern substitute for the camp-fire. The tent and other camping paraphernalia suggest the compelling atmosphere of the great outdoors.

Would Make Dealers Hold Used Cars for 30 Days

Case Pending in Massachusetts Which Classes Dealers With Pawnbrokers—Blue Laws Also Cause Trouble

BOSTON, November 6—Massachusetts laws are again being invoked to add to the burdens of the men who sell cars and accessories. In Boston there is a case pending now before the Superior Court on the right of a legitimate dealer to sell a car he has taken in trade. The Boston police department at first notified the used car dealers that they could not sell any machine they bought second hand in less than 30 days. Boston dealers in new cars were notified, too, that they must take out licenses as second-hand dealers, but they refused. So the police started to make a test case and had a dealer arrested. The case went to the Superior Court and the decision has not yet been made. The police contend that the law says every used article, and that includes automobiles, and it is worded to give the police clues to stolen articles. The pawnbrokers must report every article pledged with them, and the motor car dealers are to be classed with them.

In Springfield, Mass., last week, Elton C. Smith, clerk in an accessory store of Judson M. Strong, was in court before Judge Heady charged with making a sale on Sunday. He was found guilty, but his

case was continued from day to day on the promise that the store would not be opened on Sunday in future. According to the interpretation of the judge, no garage proprietor may sell gasoline, tires, accessories or parts on Sunday. Springfield dealers plan to take the matter up and try to have the law changed in such a way as to permit them to continue to do business on Sunday.

Mules Taken In Part Payment

BALTIMORE, November 6—A new departure in an effort to help the sale of motor trucks has been started by the De Moss-Merritt Truck Co. As an inducement for those who are now using horses and mules to do their hauling the firm offers to take these animals in part payment on motor trucks. The company is Maryland distributor of the Selden truck. In addition to this offer the trucks are being sold on time payments.

Willard Adds Ten More Stations

CLEVELAND, November 6—The addition of ten new service stations by the Willard Storage Battery Co. during the past few days brings the total of Willard stations to 544. The latest additions are:

Wayne Electric Co., Wooster, O.; Citizens Garage, Laredo, Tex.; Continental Auto Parts Co., Franklin, Ind.; the Shepard Garage, Jerseyville, Ill.; Wm. L. Clark, Seymour, Ind.; J. E. Rogers, Ft. Morgan, Col.; Hartman Bros., Montrose, Col.; Albany Storage Battery Co., Inc., Albany, N. Y.; F. A. Harrison, Ridgewood, N. J.; Battery & Elec. Serv. Station, Mason City, Ia.

Philadelphia Association Offers \$50 for Show Card

Dealer Body Hangs Up Prize for Poster Design for Show Advertising—Contest Open to All—The Conditions

PHILADELPHIA, November 7—The show committee of the Philadelphia Automobile Trade Association has offered a prize of \$50 for a design to be used in exploiting the fifteenth annual automobile show, to be held the second week in January. The contest is open to all, subject to the following conditions, which are practically the same as those which obtained for a similar contest held last year:

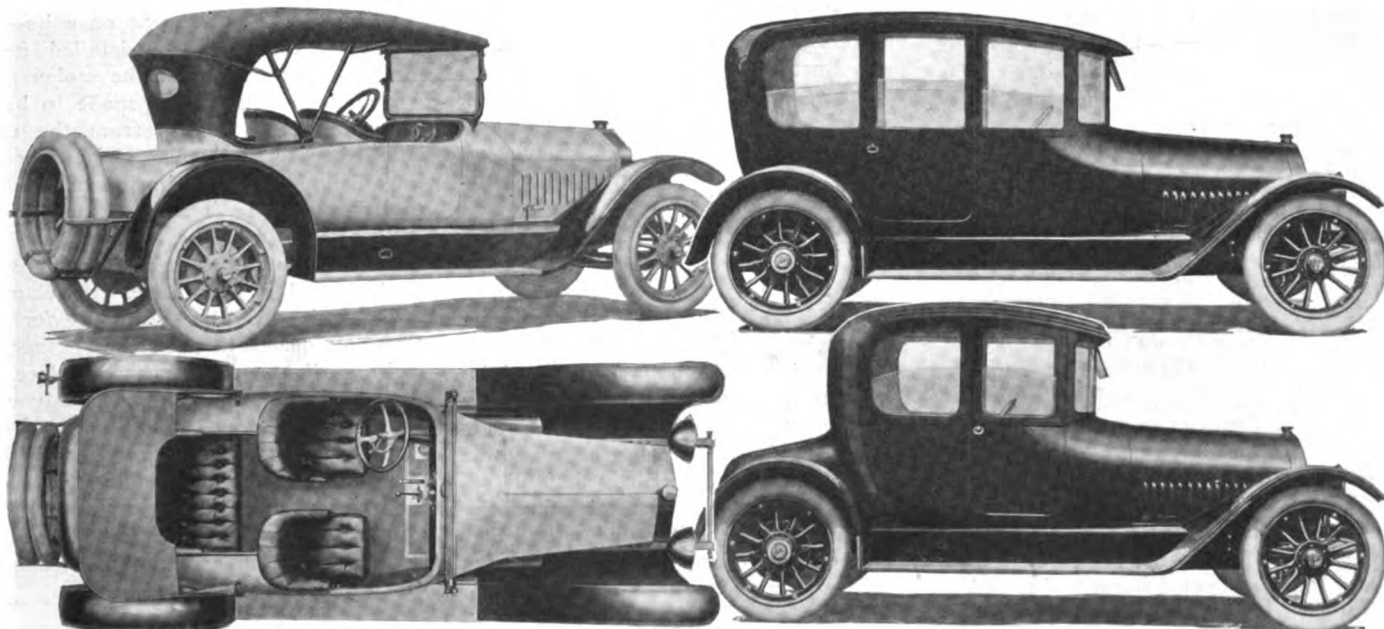
1—Drawing must be 14 x 22 in., in not more than four colors, for poster reproduction.

2—Lettering on drawing must include: "January 8 to 15; 15th Annual Automobile Show at Convention Hall, Broad street and Allegheny avenue. Admission, 50 cents; Society Day (Thursday), \$1. Direction of the Philadelphia Automobile Trade Association." Layout of the lettering must lend itself to change, without marring the general effect, into: "Program of the 15th Annual Automobile Show at Convention Hall, Broad street and Allegheny avenue, January 8 to 15."

3—Drawing must incorporate reproduction of an automobile, but not of any particular make.

4—All drawings submitted must be marked for identification, but with artist's name, address and private identification mark in separate sealed envelope, and submitted for competition not later than noon, November 22.

National Develops Three New Body Types for the Highway Twelve Chassis



The National Motor Vehicle Co., Indianapolis, will equip its new Highway Twelve chassis with three types of body for the 1916 market. These include a three-passenger roadster, a four-passenger coupe and a five-passenger sedan. All three of these bodies follow out the same general trend of National body construction that characterizes previous models. The coupe sells for \$2,650; the five-passenger sedan has a center door on the right side and a forward door on the left and sells for \$3,200; the three-passenger roadster sells for \$1,990.

Resta Makes New Record on Sheepshead Bay Track

105.39 M. P. H. New American Speed for Century—Burman and Rickenbacker Second and Third—De Palma Wins Match

SHEEPSHEAD BAY SPEEDWAY, November 2—Resta, driving a Peugeot, won the 100-mile race for the Harkness gold challenge cup, going the distance in 56 min. 55.7 sec., an average speed of 105.39 miles per hour. He did not make a single stop. This is a new American record for the distance and is within 26 sec. of the English record made at Brooklands. Robert Burman, driving another Peugeot, finished second, a little more than a lap behind the winner, his time being 58 min. 38.95 sec. and his average speed 102.43 miles per hour. He stopped once for a right rear tire. Rickenbacker, Maxwell, was third and made a non-stop race, but his car was not fast enough for the company it was in. The time was 61 min. 0.59 sec. and the average speed 98.33 miles per hour.

There were six starters, Resta, Burman, Mulford and Aitken driving Peugeots, De Palma a Mercedes and Rickenbacker a Maxwell. Aitken started out at a fast clip, taking the lead, but went out at 12 miles with a broken connecting rod. De Palma went out at 40 miles after making two stops to doctor up his carbureter, and Mulford, who set the pace after Aitken fell by the wayside, wound up at 92 miles, also with a fractured connecting rod. Mulford was the hard-luck man of the day, making four stops to change tires, in each case the right rear and on the last occasion both rear tires. His car was the fastest in the race, but his tires put him back. The first change was made in 21 sec. at 28 miles; the second was at 50 miles, and the third, at 76 miles, was made in 23 sec. In the middle of the race Mulford regained from Resta more than a mile of lost distance, but in doing so brought on more tire trouble.

The start was a flying one with De Palma at the pole and outside of him Resta, Aitken, Rickenbacker, Burman and Mulford. At the end of the initial lap the order was Aitken, Mulford, Resta, De Palma and Burman, with Rickenbacker trailing. Aitken established himself in the lead with Resta and De Palma close up, which order continued until 12 miles when Aitken was out and at this point Mulford passed Resta and took the lead, with Resta, Burman and De Palma bunched 100 yd. back. A few laps later Mulford was more than the length of the homestretch in the lead. Mulford was making lap after lap at 108 m. p. h., when his first tire went and he was

placed back nearly a lap, giving the leadership to Resta at 28 miles. Mulford's average at 20 miles was 105.18 m. p. h.

With Resta slightly in the lead at this point due to Burman, Mulford and De Palma all stopping between 24 and 28 miles, the tense interest of the race ended and everybody sat back waiting for tires to become the deciding factors.

At 10 miles Aitken's Peugeot led; at 20 miles Mulford was ahead; at 30 miles Resta was at the front, and he held this position during the remainder of the race.

In addition to the 100-mile race there were two heats of 4 and 6 miles, respectively, between De Palma in the twelve-cylinder Sunbeam, which the Packard company purchased some months ago, and Burman in the Blitzen Benz. The finishes were exceedingly close. De Palma won both, taking the 4-mile heat in 2:08.61, an average of 111.97, and the 6-mile heat in 3:09.65, an average of 113.86 m. p. h. The cars were rarely more than a few lengths apart.

A third feature of the afternoon was a 2-mile exhibition by Burman in the Benz in which he was unofficially clocked at a speed of 116 m. p. h., which, if official, would establish a new American record.

Jesse G. Vincent, chief engineer and vice-president of the Packard company, drove a Packard twin-six with racing body a 2-mile lap in 1:10.52, a speed of 102.25 m. p. h. The car was standard except the timing was changed for higher speed; pistons were arched on top to give higher compression; a double Zenith carbureter was used and the rear axle gear ratio was to give 34 m. p. h. at a crankshaft speed of 900 r. p. m. Mr. Vincent says the crankshaft speed was 3,000 r. p. m. on the backstretch.

In the 100-mile event Zenith carbureters were used on all six cars, as were Bosch magnetos, Silvertown cord tires and wire wheels. Resta, Burman, Rickenbacker, Mulford and Aitken used Oilzum and De Palma Monogram. Boyce Motometers were used by all the cars in the 100-mile race.

Georgia to Prosecute Gasoline Dealers

ATLANTA, GA., November 4—Between 50 and 75 retail and wholesale dealers in gasoline located in several Georgia cities are to be prosecuted by the state department of agriculture for violation of the state law which forbids the misbranding of gasoline as to specific gravity. The law requires that all retailers shall post signs, showing the specific gravity, and it is understood that some of the prosecutions will be for failure to brand at all.

Anti-thief Association Indexes Members Cars

Kansas City Body Can Give Details to Police Day or Night — Outlets From City Guarded—Legislative Action Planned

KANSAS CITY, November 6—The new Anti-Motor Thief Association, organized and incorporated in Kansas City for the protection of automobilists against thieves who steal motor cars and accessories, has chosen Frank E. Lott as president, Lawrence E. Smith as secretary, and W. S. Webb as treasurer. The managing committee includes a representative from each of the following organizations: The Commercial Club, the Board of Trade, the Rotary Club, the Co-Operative Club, the Automobile Club, the Automobile Dealers Association, the Engineering Club, the City Club, the Insurance Underwriters Club and other civic associations.

The association has made up the most complete program of precaution looking primarily to the prevention of thefts, and secondarily to the catching and full punishment of thieves, as well as the recovery of the stolen property. Each car owner is to have a special number on the records in connection with which is to be recorded the name and make of his car, the factory number, the number of his state and city license, the tank number and every other fact of possible identification. A man is to be kept on duty for every hour of the day and night, in charge of this record, so that when a machine is reported stolen every police officer in the city may at once be apprised of the complete detailed facts for the identification of the stolen car. Arrangements have been made to have every means of egress from the city guarded. An ordinance is now being framed under the inspiration of the association making it a misdemeanor to buy or sell a motor car which has had the factory number taken off by any method, and it is said the city council will pass it. Another ordinance forbidding any dealer in used cars or accessories to live over or near his place of business is suggested, but probably will not pass.

The association has a membership fee of \$3. There is a standing offer of \$100 reward for the arrest and conviction of a motor car thief and \$100 more for the arrest and conviction of a firm that sells stolen motor cars.

Have you a proper accounting system in your business? Whether you have or not you should turn to page 9. Read the announcement of the Motor World Simplified System of Garage Accounting.

Too Much Space Adds to Costly Overhead

Better a Smaller but Better Place at Same Rental—Leasing
Part of Front Takes Little from Space

By Ray W. Sherman

MALCOLM CORDAY had realized his dream. He was a garageman. There was no disputing the point. He had a sign out over the front of the big building he had rented and it said: "Garage." On his letterheads it also said: "Malcolm Corday, proprietor." Therefore, it was indisputable that Malcolm was a garageman.

Assuming that a real garageman must also be a business man, there enters another phase which might cast some doubt upon Malcolm's standing as a garage-

portunity. Also, he had known Malcolm when the "proprietor" first began wiping off parts and sweeping the floor in the shop where the new garageman got his training.

"Well, Malcolm! Some place! Regular garageman now, eh?" was Reilly's greeting. He shook Malcolm's hand even if it was greasy and looked about the building with a critical eye.

"Hope to have a regular place after a while," smiled the new entrant to the town's trade circle.

Too Much Room

"What do you think of it, anyway?" he asked, after he had shown Reilly over the garage and had wound up the tour in the office.

"You have great possibilities, Malcolm, if you keep after things in the right way. But I think you have too much building here for your business."

"Too much?" questioned Malcolm.

"More than you need," replied Reilly.

"If you're paying much rent for this you're wasting money."

"Yes?"

"How much do you pay, if I'm not getting too inquisitive?"

"Hundred a month."

"That's a pretty fair rental for this building, Malcolm. You aren't getting any great bargain on it, and you certainly don't need all of this space."

"But it was about the only thing in town that I could rent."

Better New and Smaller

"You might better have had some one build you a new but smaller building and pay a hundred or a little more a month for it. You could do a better business in a new building."

"Never thought of that," admitted Malcolm.

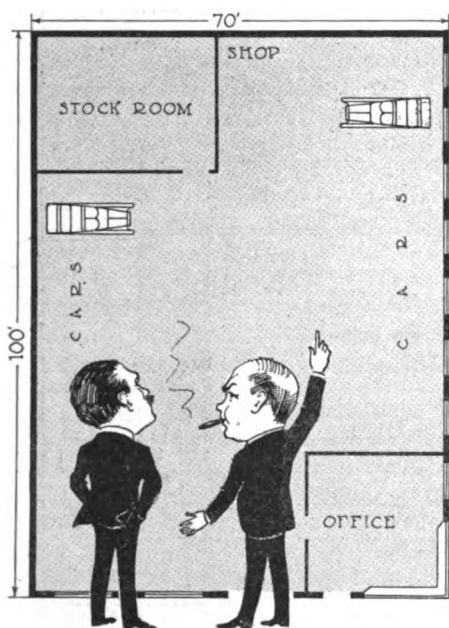
"Now see: You have a front of how many feet?"

"Seventy front—a hundred deep."

"Seventy feet front is a bad front for a garage. You don't need but fifty. You can do just as much in fifty as you can in seventy, and frontage is what counts in the rental. Your depth of one hundred is all right; the depth doesn't matter so much, but you certainly have a bad

frontage size. Not only is it bad, but you don't need that much space.

"You plan to make repairing a big feature of your business with storage a secondary consideration. For a shop you can get along with a surprisingly small amount of space and in storing cars your seventy feet of width is unwieldy. If you store your cars along the wall—as you now are—this leaves a great big wide aisle in the center of the floor. If you use this for storage—which you do not—it blocks up the cars along the wall.

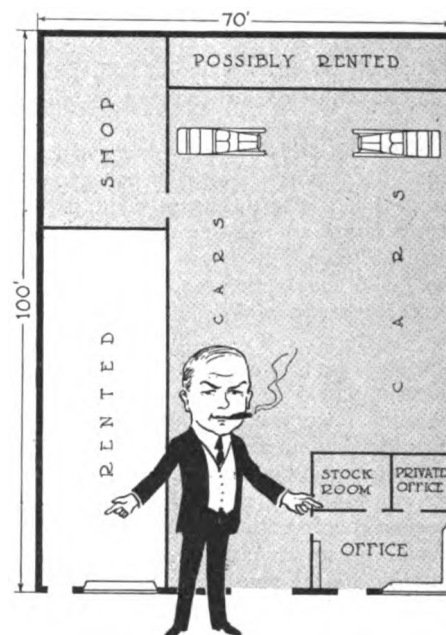


"That's a pretty fair rental for this building. You aren't getting any great bargain on it and you certainly don't need all this space"

man; for he had been but one of several repairmen in a Callawassa shop until he found a man who was willing to risk part of his money in helping Malcolm set up in business. And Malcolm's ideas on business were more or less vague.

Old Friends

Malcolm had been in business now for three weeks when Reilly stopped one morning at his door. Reilly was one of the scouts for the Callawassa Motor Trade Association, and he always called on old and new tradesmen at every op-



"You could cut twenty feet off there and rent it for a variety of purposes. Maybe you could rent a strip off the back if you don't need it"

"If you don't use it you are wasting that space and space economy without crowding is one of the spots where it is possible to save money in a garage. It costs more for rent, light and heat in this building than it would in one that was fifty feet wide and the same depth."

Suggests Sub-renting

"I wouldn't wonder but you're right," said Malcolm, as he tapped the desk with his pencil.

"Had you ever thought of sub-renting some of this space?" asked Reilly, again

Have you a proper accounting system in your business? Whether you have or not you should turn to

page 9. Read the announcement of the Motor World Simplified System of Garage Accounting.

looking about, through the windows and at the ceiling.

"No, I hadn't."

"Well, it could be done," asserted Reilly, "and it would do quite a bit toward keeping down your overhead."

"Yes." Malcolm was eager to hear more about this keeping down of overhead.

"Now, take this other side of your building. This side where the office is is on a street corner and I would advise you to keep that for yourself, but the other side could very nicely be shaved off and rented and you would never miss the space; in fact, you would be better off without it.

Cut Off Twenty Feet

"You could cut twenty feet off over there and rent it for a variety of purposes. Since you have chosen a location just off the main street, only a block away, it makes a fairly desirable site, and you ought to be able to rent it without difficulty."

"Who'd rent it?" Malcolm had struck the first problem, but Reilly was quick with a suggestion.

"Well," he said, "look around and find some little business man who has a location that is not so near the main street or that is not so well located and see if you can't rent it to him. There's Mulvihill, who runs a tire repair shop three blocks further from the main street. Why not put it up to him? This would be a fine location for him and it would be of some help to you. You aren't figuring on doing much tire repair business, and it would be an advantage to have such a good place right next door.

"Also, Mulvihill has one of the best places in town and has a good trade, and it would be an advantage to you to have him right beside your door.

"Or, there's likely to be some dealer just setting up in business and looking for a small place in a good location. Even if you were handling a car—and you are not—it would not necessarily kill your business to have a dealer next door. There are dealers 'next door' on every automobile row in the country, and they all seem to do business somehow or other.

Find a Tenant

"Or, you could find a harness man or a lunch room man or almost any man. All you need to do is look around a little. Don't wait for the man to come to you. Go to him. Find some man and sell him the space, just the same as I find a man and sell him a car.

"Your layout's like this." Reilly sketched on a sheet of paper. "I should say you could just as well have it like this." He sketched some more. "You ought to be able to get as much as twenty-five dollars a month for twenty feet fifty feet deep. That pays one quar-

ter of your rent and doesn't take one quarter of your space.

"You have an office twenty-five feet square. That's a mile too big. You aren't paying any attention to accessories—and you should. Your stockroom is away back at the rear. You have a poor layout all around.

"One trouble is your doors. They ought to be at the center of your floor space. As it stands now they are in the center of the building. With part of the frontage rented they would not be at the center of the remaining portion. You might get the landlord to make the alterations or you might do it yourself if it didn't cost too much. And maybe you

could rent a strip off the back if you found you didn't need all that was left."

"Guess I'll think this over, Reilly."

"The point is, Malcolm, that a great many dealers and garagemen are paying rent for space that is a burden to them. They are space poor. They are paying for something they never use. You might better have a smaller place and have it look brisk and full and business-like than a big rambling shack in which your business looks lonesome."

"Do you know, Reilly," said Malcolm, "I've had a funny feeling ever since I started. I have felt awed at something. Now I know what it is; it's this darned big barn of a place with nothing in it."

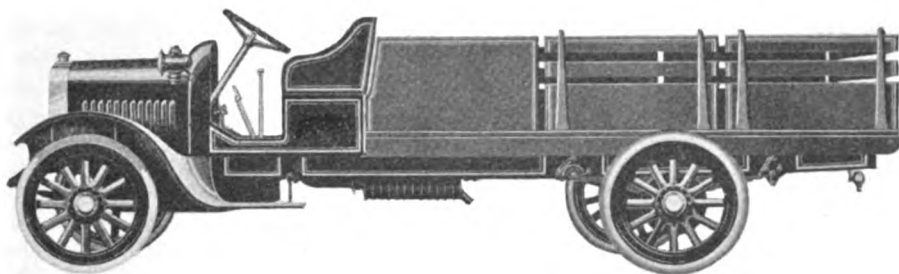
Steers Didn't Let This Idea Get by—Did You?

<p>Identification Tag No. 59</p> <p>"518" GARAGE 518 Grand River Avenue L. C. STEERS, Owner Phone Grand 442</p> <p>DAY STORAGE RATES 7 A. M. to 5 P. M. 4 Hours or less..... .25 Each hour thereafter..... .05</p> <p>NIGHT STORAGE 5 P. M. to 10 A. M. Per Night..... .50 24-hour Storage..... .75 Per Week..... \$2.50 to \$3.50 " Month—live..... \$10.00 to \$12.00 " " —with care..... \$13.00 up</p> <p>Washing only..... \$1.00 up Washing and Polishing..... 1.50 up Body Polish, extra..... .50 up (Cars left for wash and polish are exempt from night storage rates.)</p> <p>TIRE REPAIR PRICES Single tire change..... .35 up Double "..... .75 up Vulcanizing tubes..... .25 up " casings..... \$1.00 up</p> <p>WE ARE NOT RESPONSIBLE for loss or damage by fire or other causes beyond our control, of vehicles and accessories left with us for sale, storage or repairs.</p>	<p>No. 59</p> <p>Owner</p> <p>Address</p> <p>License No.</p> <p>Car Name</p> <p>Hour in M..... 191..</p> <p>Hour out M..... 191..</p> <table border="1"> <tr><td>Storage</td><td></td></tr> <tr><td>Washing, only</td><td></td></tr> <tr><td>Washing and Polishing</td><td></td></tr> <tr><td>Body Polishing, extra</td><td></td></tr> <tr><td>Gasoline</td><td></td></tr> <tr><td>Oil</td><td></td></tr> <tr><td>Dope</td><td></td></tr> <tr><td>Tires</td><td></td></tr> <tr><td>Tubes</td><td></td></tr> <tr><td>Tire change</td><td></td></tr> <tr><td>Supplies</td><td></td></tr> <tr><td>Labor</td><td></td></tr> <tr><td>Total, \$</td><td></td></tr> <tr><td>A. M.</td><td></td></tr> <tr><td>Car ready at..... P.M.</td><td></td></tr> </table>	Storage		Washing, only		Washing and Polishing		Body Polishing, extra		Gasoline		Oil		Dope		Tires		Tubes		Tire change		Supplies		Labor		Total, \$		A. M.		Car ready at..... P.M.	
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The card at the right was printed in Motor World July 14. The left and center portions of the tag are given to the car owner, and he must have them to get his car. The right half is tied to the car.

L. C. Steers, secretary of the Garage Owners' Association of Michigan and proprietor of the 518 Garage, Detroit, took the idea and used it in the simplified form shown above. The left half is the identification tag. And he will supply them to association members at from \$2.50 to \$3.50 per 1,000 on 200-lb. board.

<p>Identification Tag. No. 128</p> <p>JOSLYN AUTO CO. 320 S. Church Street GARAGE</p> <p>DAY STORAGE RATES 4 Hours or less..... .25 Each hour thereafter..... .05</p> <p>NIGHT STORAGE 5 p.m. to 9 a.m. Per Night..... .75 " Week..... 3.00 " Month—live..... 8.00 " Month—dead..... 6.00</p> <p>The only Garage in Reelford equipped with Automatic Sprinklers.</p> <p>WE ARE NOT RESPONSIBLE for loss or damage by fire or theft of vehicles and accessories left with us for sale, storage or repairs.</p>	<p>Date In Out 128 Date In Out 128</p> <table border="1"> <tr><td>A. M.</td><td>License No.</td><td>A. M.</td><td>License No.</td></tr> <tr><td>IN</td><td>1</td><td>IN</td><td>1</td></tr> <tr><td>OUT</td><td>2</td><td>OUT</td><td>2</td></tr> <tr><td>1</td><td>Name</td><td>1</td><td>Name</td></tr> <tr><td>2</td><td>City</td><td>2</td><td>City</td></tr> <tr><td>3</td><td>Car Name</td><td>3</td><td>Car Name</td></tr> <tr><td>4</td><td>Storage</td><td>4</td><td>Storage</td></tr> <tr><td>5</td><td>Washing</td><td>5</td><td>Washing</td></tr> <tr><td>6</td><td>Polishing</td><td>6</td><td>Polishing</td></tr> <tr><td>7</td><td>Gasoline</td><td>7</td><td>Gasoline</td></tr> <tr><td>8</td><td>Oil</td><td>8</td><td>Oil</td></tr> <tr><td>9</td><td>Tires</td><td>9</td><td>Tires</td></tr> <tr><td>10</td><td>Tubes</td><td>10</td><td>Tubes</td></tr> <tr><td>11</td><td>Tire Repairs</td><td>11</td><td>Tire Repairs</td></tr> <tr><td>12</td><td>Supplies</td><td>12</td><td>Supplies</td></tr> <tr><td>1</td><td>Labor</td><td>1</td><td>Labor</td></tr> <tr><td>2</td><td>Car ready at..... A. M.</td><td>2</td><td>Car ready at..... A. M.</td></tr> <tr><td>3</td><td></td><td>3</td><td></td></tr> <tr><td>4</td><td></td><td>4</td><td></td></tr> <tr><td>5</td><td></td><td>5</td><td></td></tr> <tr><td>6</td><td></td><td>6</td><td></td></tr> <tr><td>7</td><td></td><td>7</td><td></td></tr> <tr><td>8</td><td></td><td>8</td><td></td></tr> <tr><td>9</td><td></td><td>9</td><td></td></tr> <tr><td>10</td><td></td><td>10</td><td></td></tr> <tr><td>11</td><td></td><td>11</td><td></td></tr> <tr><td>12</td><td></td><td>12</td><td></td></tr> </table>	A. M.	License No.	A. M.	License No.	IN	1	IN	1	OUT	2	OUT	2	1	Name	1	Name	2	City	2	City	3	Car Name	3	Car Name	4	Storage	4	Storage	5	Washing	5	Washing	6	Polishing	6	Polishing	7	Gasoline	7	Gasoline	8	Oil	8	Oil	9	Tires	9	Tires	10	Tubes	10	Tubes	11	Tire Repairs	11	Tire Repairs	12	Supplies	12	Supplies	1	Labor	1	Labor	2	Car ready at..... A. M.	2	Car ready at..... A. M.	3		3		4		4		5		5		6		6		7		7		8		8		9		9		10		10		11		11		12		12	
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The Acme has a wheelbase of 148 inches and the tires may be single or dual

New Acme 2-ton Truck Sells for \$2,000

Has Final Drive by Worm and Is Constructed of Standard Parts Throughout—Other Models to Be Brought Out to Form Complete Line

A NEWCOMER in the motor transportation field is the Cadillac Auto Truck Co., Cadillac, Mich., which has brought out a 2-ton truck, the Acme, with worm drive, built throughout of standard parts and selling for \$2,000. Another model is to follow and ultimately the company intends to market a complete line.

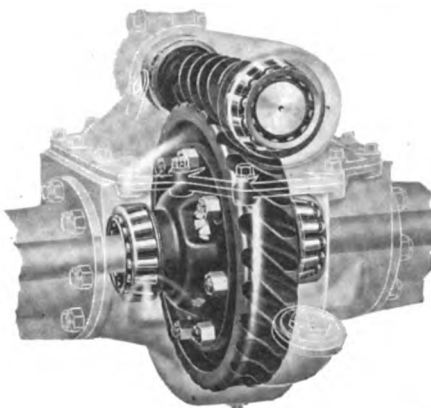
The Acme truck has a four-cylinder Continental motor, type C, with cylinders $4\frac{1}{8} \times 5\frac{1}{4}$, built as a unit with the three-speed Warner gearset and multiple disk clutch; the unit is hung from a three-point suspension. Ignition is by an Eisemann magneto and the carbureter is a Rayfield. The water is cooled by a Long radiator, heavy truck type. A Pierce governor, which can be locked and sealed when set, maintains a maximum speed limit of 17 m. p. h., which is the equivalent of an engine speed on high gear of 1,200 r. p. m.

Drive to the rear axle is through a propeller shaft which is in two parts and has three universal joints; the rear section of the shaft affords a straight-line drive to the Timken-David Brown worm. The center is supported on self-aligning ball bearings. The rear axle is Timken throughout, full floating, with Timken bearings, and the front axle is of the same make. There are no radius rods or torque members, the top leaf of each spring being of a construction which permits the drive to be transmitted through these members.

Both service and emergency brakes are of the internal expanding type on the rear wheels. A Smith heat-treated pressed steel frame is used; the springs are Detroit's, self-lubricating and having bronze-bushed eyes, and the steering gear is a Gemmer.

The wheelbase is 148 in.; the tread, which is the same front and rear, is $58\frac{1}{2}$ in. The wheels, of wood, are of the same diameter front and rear. Regular equipment includes single tires all around, 36

x 4 front and 36 x 6 rear. Dual tires will be fitted, however, when this is de-

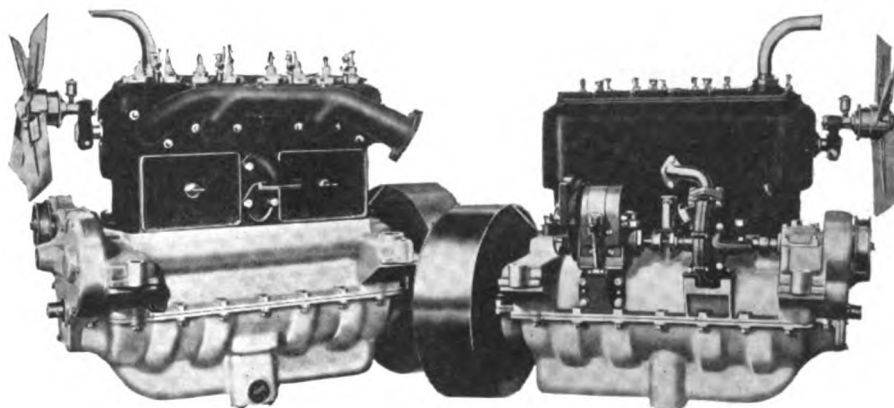


The Timken-David Brown worm drive

sired. The overall length of the truck is 18 ft. $1\frac{1}{2}$ in. and the length of the loading space is 10 ft. 8 in.

Straightening Misaligned Springs

Sometimes the spring pads on the axle are nearer together than the frame horns with the result that the springs are bent in, with consequent wear on the spring bolts and strain on the springs. The



The motor of the Acme 2-ton truck is a Continental Type C with Rayfield carbureter and Eisemann magneto

ACME TRUCK SPECIFICATIONS

Price	\$2,000
Make of motor.....	Continental
Type of motor.....	Type C
Number of cylinders.....	4
Shape	L-head
How cast	Block
Bore	$4\frac{1}{8}$
Stroke	$5\frac{1}{4}$
S. A. E. rating.....	27.25
Magneto	Eisemann
Carbureter	Rayfield
Clutch	Disk
Gearset	3-speed
Wheelbase	148
Tread	$58\frac{1}{2}$
Front tires	36 x 4
Rear tires	36 x 6
Make of axles.....	Timken
Type rear axle.....	Floating
Final drive	Worm
Length of loading space.....	10 ft. 8 in.
Overall length	18 ft. $1\frac{1}{2}$ in.

usual method of curing this trouble is to file the spring clip holes in the axle oval until the clip may be shifted directly under the frame. This method has the disadvantage that there is always the possibility of the clip slipping back into its old place, since there is nothing but friction holding it. A better way is to file only the outside hole, then stretch the body of the clip by forging until it fits and permits lining up, and a strip of steel is placed between the clip and the spring to close the space between them and prevent the spring from slipping back.—George B. Cortelyou, Brooklyn, N. Y.

Tin Foil for a Fuse

When a fuse has burned out and there are no spares at hand a temporary repair can be made by simply wrapping the old fuse in tin foil and putting it back in place. Tin foil from a cigarette box, or a bar of chocolate is all right, and one layer is sufficient.—G. O. Reynolds, New Rochelle, N. Y.

Dealer's Legal Status

Manufacturer Cannot Fix Resale Price of an Article Under the Patent Laws—When He Gets What He Asks of Dealer That Ends the Transaction

By George F. Kaiser

Now that the right of a manufacturer to maintain prices is being so generally discussed, a recent case decided by the District Court for the Southern District of Ohio is naturally interesting.

Suit was started by a motor car manufacturer under its own patents to restrain certain dealers from representing that they could procure the manufacturer's automobiles for sale at a price less than the regular list price, and further to restrain them from dealing in that make of car and from cutting its price restrictions.

It appeared that the dealers obtained the motor cars from other dealers and advertised and sold them for less than the manufacturer's regular list price. The manufacturer had attempted to maintain prices by requiring its purchasers to sign a contract in which they were given a restricted right to use and sell automobiles made by the manufacturer in certain territory.

The court held that when a patentee sells a machine made by him under his patents and obtains all that he asks for it, he has no further right under the patent laws, and that he cannot legally fix the price at which the person who buys from him must resell it, and that when the manufacturer attempts to fix the price at which his vendee shall sell, his attempt comes in conflict with the Sherman anti-trust law and the various laws governing restraint of trade and monopolies, and further, when a motor car was sold to a purchaser by the manufacturer and the price was paid, the purchaser received title to the car and it could not revert to the manufacturer, because the subject matter of the contract had passed from his control. (*Ford Motor Co. vs. Union Motor Sales Co.*, 225, Federal 373.)

DEALER CANNOT WARRANT TIRE MILEAGE

The Supreme Court of Tennessee recently decided that an agent who has authority to sell a motor truck is not justified in warranting that tires will last a given length of time while carrying an excess load.

Suit was started for recovery on the ground of breach of warranty alleged to



WHAT

Do you want to know about the legal status of your business? This department will answer any and all questions without cost to you.

have been made in the sale of a motor truck. It seems that the owner's agent had warranted that the tires on the truck would last for 8,000 miles and carry a 50 per cent excess load. The court held that as the authority given to the agent was simply to sell the truck at a specified price he had no right to attempt to bind his principal by making any such warranty and if he did make such warranty he might be personally liable to the buyer. (*Nixon Mining Drill Co. vs. Burk*, 178 S. W. 1116.)

Maker Can Take Goods Over Dealer's Head in Some Cases

If He Reserves Title in Goods to Be Resold by Dealer He Can Retake It if Buyer Becomes Insolvent

When personal property is sold to a retail dealer for resale by a contract in which the title is reserved in the seller, the latter may repossess himself of the property remaining unsold and against trustees of the goods sold if the buyer

becomes insolvent, according to the Supreme Court of Michigan, in a recent decision.

Certain personal property was sold to a retail dealer pursuant to a contract which provided that "the title to property in and right of possession of said goods should be and remain in said first party until sold and that upon sale thereof the proceeds received therefrom, whether notes, accounts or moneys, should be and remain the property of said first party until said goods are fully paid for in cash."

The retailer was billed \$640.64. When he received the goods he placed them in his store, together with his other stock, and from time to time sold some of them until he became financially embarrassed. He gave a trustee a chattel mortgage on all his property to secure his creditors. The manufacturer thereupon demanded that the goods sold under the contract be returned to him, and when the trustee refused to turn over the property a replevin suit was brought.

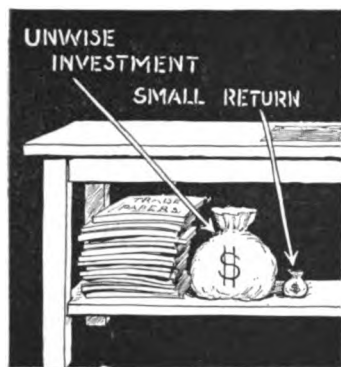
The court held that the manufacturer was entitled to the property, even though it appeared that the retail dealer had not had his attention called to the clause in the contract whereby title was reserved and did not read it, as it was his duty to read it and the presumption in favor of written contract cannot be overcome, except upon evidence from which fraud or deceit may be deduced. (*Mishawaka vs. Stanton*, 154 N. W. 48 Michigan.)

Fuel and Oil Can Be Sold on Sunday in New York

Old Blue Law, Which Prohibited Sale, Was Recently Amended—An Example

In those states where there have lately been convictions for violations of various Sunday laws by the sale of gasoline, accessories, etc., Chapter 278 of the Laws of 1915 of New York, which became effective April 4, 1915, will no doubt be of interest. This law, entitled "An Act to Amend the Penal Law in Relation to Public Traffic on Sunday," was amended at the last session of the New York Legislature by the insertion of the words "gasoline, oil and tires," and now reads "prepared tobacco, milk, eggs, ice, soda-water, fruit, flowers, confectionery, newspapers, gasoline, oil, tires, medicines and surgical instruments may be sold in places other than a room where spirituous or malt liquors or wines are kept or offered for sale and may be delivered at any time of the day."

If an act similar to this were passed by legislatures of some of the other states where various old "blue" laws are still in force, there would be less unreasonable and foolish prosecution of the kind.



Why Does the Dealer Buy the Trade Paper?

Unwise Buying Is Waste, As In All Other Things—There Are Papers He Should Have—Others He Does Not Need

By Ray W. Sherman



EVERYWHERE in the Northwest—and in other sections, too—there are piles of trade papers lying on the desks and in corners of the offices of salesrooms and garages.

Why are they there?

They are of all classes and grades. They are opened and unopened. They are read and unread. Some are thumbled and greasy from much handling; others retain their pristine loveliness and the wrappers in which they came. They all cost the dealer money.

Why Are They There?

Everything the dealer buys should be an investment. The stock he puts on his shelves yields a profit. The cars he buys add to the money in the bank. The telephone on his desk facilitates business. The letter file pays for itself many times in a year. The card index system cannot be valued in terms of money. All these things are an investment. The trade papers—

Why Are They There?

If the pile includes a half dozen trade papers the cost to the dealer is \$10 or \$12 a year—or should be. If they are not worth that they are not worth much. Some of them cost him more. Some of them are excellent papers in their fields, but their field is not that of the dealer. Why then does he buy them?

The answer is that he is not discriminating. He knows that every man in every trade should take and read a good paper of that trade in order that he may keep in touch with the progress of that trade and be a better member of it. He has studied the buying of stock, the purchasing of supplies and the operation of his business, but he has not studied the question of the trade paper.

Lest any reader of this story fear that this be but an advertisement of Motor World masquerading under the cloak of a story, let us say right here all that is to be said about Motor World.

Every one connected with Motor World believes it is the best dealer and garage paper printed—and quite a few readers agree with them. There are other papers, but Motor World believes it can lay claim to leadership in its line. Anyway, there is no harm in saying a good

This is the seventh of a series of stories on the great Northwest by Ray W. Sherman. The eighth will appear in an early issue.—Editor.

word for ourselves here, for it probably will be read only by regular readers of the paper, so what's the harm. It's said, anyway, so let it go at that. Motor World will not be mentioned again.

This statement also might as well be made. The dealer and garageman should read a paper of his trade—not merely take it, but read it. If it is any kind of paper at all suited to his needs he will get from it more than he pays for it. In fact, the value he gets from it cannot be discussed in terms of dollars and cents, for he will be a better man if he reads and studies any good paper or any good book.

Precedent Often the Reason

The dealer and garageman seems to realize that, because of precedent or something else, he should "take" a paper.

Perhaps it is well to go back to the beginning and find where he gets them. His subscription to most of them is taken by a subscription salesman, a road man or a man at the shows. He attends at least one motor car show a year, and at these shows trade publications are generally well represented. Sometimes the subscription salesman is just plain anxious to "sell." He is not particular who buys. He is out to "sell." This type of man, if he finds the listener is a dealer, may praise his publication as a dealer paper—and sometimes the salesman may be in error on this point.

Should Specialize

Maybe it is the fault of the dealer. He may never have taken into consideration the fact that a paper which does not confine itself to his business is not just the paper for him to buy. Of course, it perhaps is difficult to discover the difference when a glib-tongued salesman is twirling the leaves and talking.

Or, salesmen have been known to offer with their paper a premium of some kind—a bill-book, a knife, or a fountain pen. The dealer does not stop to ask himself: Is this paper without the book

worth the price to me? If it is, the paper is a good buy and the premium is clear velvet. The chances are that if the paper were a good buy for the dealer the salesman would not offer him the knife, or bill-book, or fountain pen. He would try to sell on merit only.

The Others

That accounts for some of them. There are others which he gets for nothing, and this is a dying evil of the trade paper business. When subscription lists were padded by complimentary copies and certified circulation audits were unknown the publisher could go to a prospective advertiser and say: "See our circulation." Today the manufacturer-advertiser demands value for his money. He wants attested figures.

What the manufacturer-advertiser has done the dealer should do. He should demand value for his money. He should not buy a trade paper merely because it has an automobile name on the cover and has pictures of automobiles inside; he should demand the goods. His money is just as good as the advertiser's—except that maybe he hasn't as much of it—and why should he not be as discriminating in getting value received for it? He should.

Three Classes

But to get back to those piles of papers in the garages and salesrooms. There are in the motor car industry three distinct divisions—the man who makes the car, the man who sells the car, and the man who buys the car. The interests of the three groups are not the same. Their businesses are not the same. From the car viewpoint they do not see the same, and the men themselves are not the same.

Regardless of whether the publishers have so intended, the papers they publish come more or less within one of these classes. No paper can cover all three fields equally well. The man who makes steel for horseshoes reads an iron trade paper, the man who sells them reads a hardware and jobber's paper, and the man who puts the shoe on the horse reads a horseshoer's paper. Maybe the steel man also reads the horseshoer's paper, but he knows which is really his

trade paper. And the horseshoer wastes no money on the iron trade paper.

The time will come—it is coming—when the same condition will prevail in the motor car industry. The manufacturer and car owner even now, whether they intended so or not, have chosen the papers which they know cover their portion of the industry. The car owner, with touring, home repairing and such things of greatest importance to him, reads the papers that cover those things.

But the dealer has not yet come to a sufficient discrimination. He, too, is buying the papers which the car maker and the car owner find interesting, and because he has been buying them and has not found them of great interest is one reason why many of the papers lie unopened and unread. Why he bought them was told before; this is why they lie in an unused heap.

What He Does With Them

Some of them he opens, thumbs over and chucks into the pile. Some of them his customers carry away. If the dealer will stop to ponder, however, he will generally find that in the papers he takes—provided he takes many—there is one which he likes to read. It pertains to his business; it covers business methods, selling plans, garage and shop operation, office systems and those things which are a vital part of his business.

This hits him in a sensitive spot; it is the kind of thing he needs in his business; it helps him; it gives him ideas; it aids in making his business a better business and himself a better business man. That is the kind of paper he should take. The other he should not take, unless he thinks them sufficiently interesting to justify the expenditure. The point, however, is that if he takes them he should read them—else he should not take them. Why waste good money?

In one garage, which may be taken as an example, there were:

In One Garage

A—A paper representing a car owner's association.

B—A chauffeur's paper.

C—A car owner's paper.

D—A manufacturer's paper.

There was no dealer trade paper. The result was that the papers were not being read. They were a needless expense to the business, but the dealer was living up to that tradition of the trade which says: "You must take a trade paper." His effort was good but his choice was bad.

A dealer insisted that all the papers were "about the same." A study of the papers with him disclosed that he made the statement without grounds. He had always believed all motor trade papers are "about the same," but had never made any study of the matter. When he was shown he conceded that he had

maintained an erroneous belief for years.

In one town in southern Minnesota are a father and two sons, who are the most discriminating trade paper buyers I have ever met. They are engaged in a specialized line of work in the motor car trade and take several papers. As each paper begins to come they study it; they go over it with a fine-toothed comb. They take it apart as they take apart a motor. They hold it up to the merciless light of their criticism.

Discriminate

They say: "Our trade paper must be a help to us in our business. If it isn't we don't want it around." And they don't have them around. They stop them in a very few weeks. They have taken all kinds of papers, and have discarded many. The ones they now take are helping them; one is now on test and its fate should be known soon.

In connection with their business they shoe horses. They used to take a horseshoer's paper until, as the son said, "It got to running nothing but pictures of union officers and we quit it. Five years ago it helped us in our business. Today it's no good."

The dealer in sifting papers to ascertain which one suits him should find one which covers:

- 1—Business methods.
- 2—Shop methods.
- 3—Sales methods.
- 4—News of the trade.

Things of Value

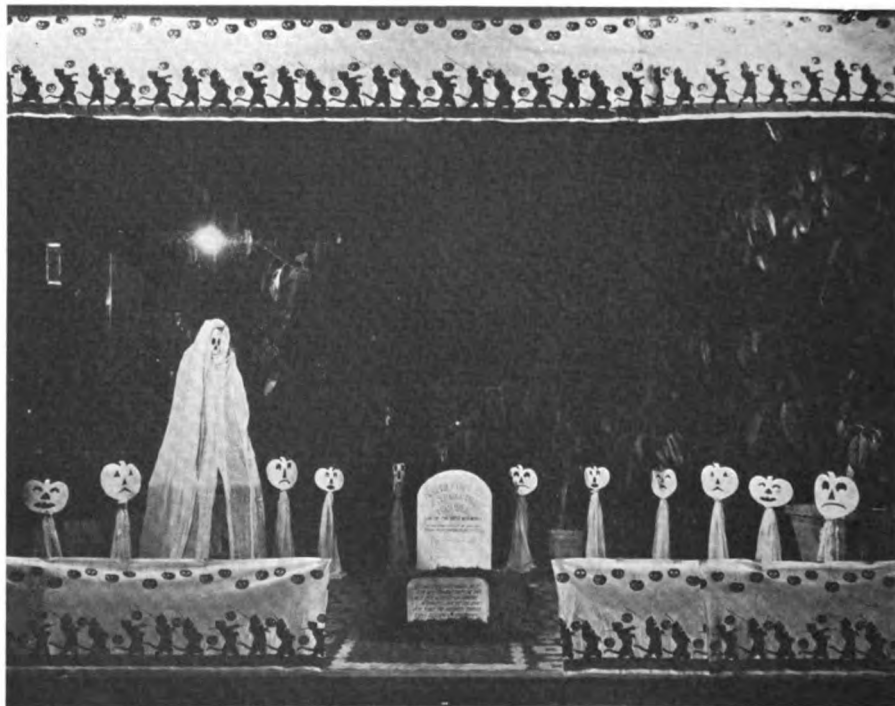
Also the paper may cover such other features as it is able to build up and make valuable to the dealer, and by dealer is also meant garageman. It may develop various departments such as law, service to the reader and other things.

In buying a trade paper these are the things the dealer and garageman should bear in mind. If it is a question of buying to help out the salesman give him four bits and save the space the paper would take up.

Make It Prove Its Worth

When the dealer sells a car he must prove to the prospect what the car can do. When he buys a trade paper—or anything else—he should do the same. Buying a trade paper should not be a mere habit or a charity. It should be an investment.

An Effective Display With a Hallowe'en Atmosphere



An unusually striking and clever window display is to be seen at the Detroit branch of the B. F. Goodrich Co. It represents the grave of Old Man Tire Trouble surrounded by spooks and a ghost.

A plot of earth and grass has been laid in the fore part of the window and two tombstones. On the larger the inscription reads:

"Here Lies the Body of Old Man Tire Trouble, Son of the First Automobile. He was knocked out in the first round with GOODRICH SAFETY TREAD. Lives of great tires all remind us, let us make ours SILVERTOWN, and in passing leave behind

us cars of others broken down. May He Rest in Peace."

The second tablet bears the following inscription:

"We have no idea where he is now but Gabriel says he has not yet arrived up there. Reports are to the effect that he haunts those still using other tires."

The total expense for the display is said to be not over \$2.50, which includes principally muslin used in the make-up of the ghost and spooks. These have been made of white wood and the heads are cut out from white and black cardboard.

Repairing and Adjusting

A MYSTERIOUS LIGHTING TROUBLE

On a certain car the lighting and ignition worked properly at ordinary speeds, but as soon as the motor or the car was speeded up the motor would miss and occasionally the lights would go out. As usual, everything seemed all right. The trouble was finally located in the voltage regulator resistance spool, Fig. 1. One of the coils had become broken, and the ends had caught together so that current was allowed to pass except when vibration exceeded a certain amount, when the contact became so bad that little current was produced, thus causing missing and putting out the lights.—George Strahan, Brown's Garage, Yonkers, N. Y.

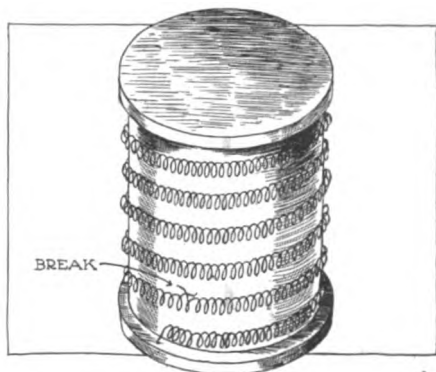


Fig. 1—How broken wires interlaced to form loose connection

to the shifting rod of the high gear in such a way that when high is engaged the valve is open and at all other times it is closed.—G. B. Cortelyou.

MAKING PAN GREASE TIGHT

One repairman was confronted with the problem of catching the oil and grease so that it would not reach the ground, in a car which had some leaks that could not be stopped. It was easy enough to catch the oil and the grease in the mud pan, but in a short time this would accumulate so that the flywheel would dip into it; furthermore, the accumulation was objectionable of itself. He solved the difficulty by installing a valve which allowed the grease to leak out when the car was on the road, but stopped it when in front of the house or in the garage. This did not eliminate the loss of the oil and grease, but it did prevent besmearing the pavement or the floor.

The valve is shown in Fig. 2, and is placed at the lowest part of the pan. The first step in installing the valve is to cut a hole about 4 inches in diameter and then turn down the edge. Next, a disk with large holes in it is riveted over the opening. The valve consists of a disk of the same size, faced with felt to make the joint tight. This disk is attached to a rod which is connected

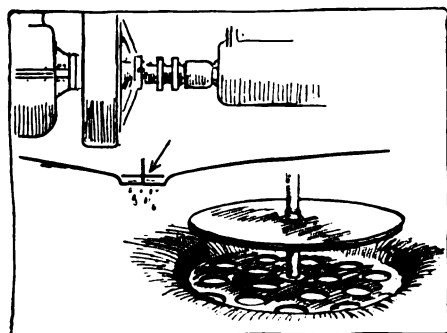


Fig. 2—Valve in mud pan through which grease is drained

CLEAR DASH OIL FEED

A dash sight feed which will keep clean although used in connection with a circulating splash system is shown in Fig. 3. It is made of a 1-in. brass elbow cut in two. The back has a plate soldered to it which is screwed to the dash and the front containing the glass is provided with a screw cap which holds the sight glass in place. The advantage of the elbow is that the glass is at an angle and away and above the stream of oil, so that it does not get dirty easily.—R. Vogel, New Rochelle, N. Y.

OIL LEAKAGE REMEDY

Where a motor leaks badly at the front or rear bearings it can be remedied by cutting an oil groove in the lower half of the outer edge of the bearing and draining what oil collects in this groove back to the crankcase. The method of draining the oil back depends on the construction, but the groove is

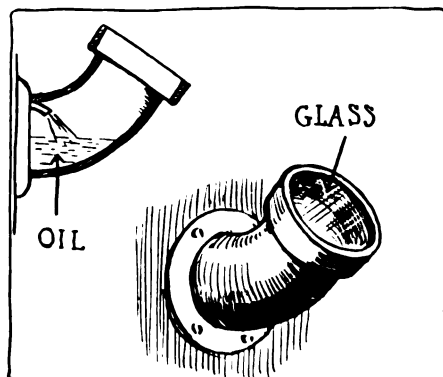


Fig. 3—Oil sight feed with clean glass, made out of half an elbow

always cut in the same way as shown in Fig. 4. This groove is merely to catch the oil and it has several holes which drain the oil into another groove underneath, from whence the oil is carried through a groove in the casting back to the crankcase. Sometimes it will be found more convenient to carry the oil back by an exterior pipe.—G. B. Cortelyou.

MAKE HASTE SLOWLY

Some repairmen diagnose trouble too quickly. A car may be brought in with a broken transmission gear. Without further investigation, it often happens, that a new gear is telegraphed for. Three days later, when the gear is received, work is started on the gearset, and then it is found that one of the bearings is defective. In fact, the indications are that the broken gear was a result of the faulty bearing. Three days are lost while a new bearing is obtained, and all because the repairman jumped to a hasty conclusion in the first place, instead of going to the bottom of the trouble.

KNOCKS CURED BY LONG PLUGS

An ignition ping (a slight knock) was cured on a certain make of car by putting in longer spark plugs. The original ones did not extend below the valve caps, which were very deep, therefore it was difficult for proper combustion to be secured.—J. E. Hartley, C. P. Weeden Motor Co., Trenton, N. J.

A NEW CARBON REMOVER

A mixture of kerosene and oil of camphor makes a good carbon remover. A pint of kerosene to 2 oz. of oil of camphor is the quantity ordinarily used and this is sufficient for most motors. The liquid is poured in through the carburetor intake while the motor is running. To prevent stalling the motor should be speeded up somewhat, and if there is still a tendency to stall the rate at which the liquid is poured in should be reduced.—John Hawkins, Hawkins' Garage, Trenton, N. J.

In many cases, dim lights below cut-out closing speed has been traced to a loose connection on the storage battery.

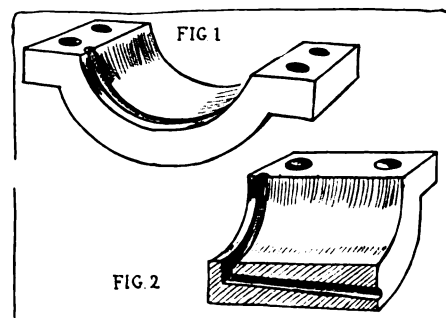


Fig. 4—Diagram showing how bearing should be grooved to allow oil to drain back to crankcase

WIDE-AWAKE MERCHANDISING

50 HOURS SERVICE OR \$50 OFF PRICE

Dealer Offers This Option— Is He Right?

There is one dealer in North Dakota who has a service card which entitles the buyer of a car to 50 hours of service; the regular shop charge is \$1 an hour, therefore the 50 hours represent \$50. If a buyers says he does not want service this dealer will ask him to sign a service release and will deduct \$50 from the list price of the car.

There is a serious question as to whether this is right or wrong, whether it is good or poor business. The question is: Should the buyer of a car be compelled to accept service? Motor World would like to have some opinions expressed on this question. Is this dealer right or wrong in his method?

Service is essentially a means of acquiring and keeping the good-will of the customer. It tends to keep him satisfied with the car, to keep the car in satisfactory operation, to keep it out of the shops of any except experts in the repair

of that car. If the owner is, by this service release agreement, invited to take the car where he will or take care of it himself is he not likely to encounter difficulties and become dissatisfied?

And if he becomes dissatisfied he not only will not buy again but may influence others not to buy. What is the answer?

COLORED PINS WILL REVEAL WONDERFUL THINGS

Those maps and pins with colored heads to indicate the location of car owners are most valuable to the dealer. Take a city map and wherever there is a car owner put a pin. For different models or different years of cars different colored pins may be used. A 25-cent map mounted on a big sheet of cardboard will suffice.

The pins will reveal wonderful things. Generally they show that the customers are grouped, which indicates that customers are selling cars for the dealer—unknowingly perhaps. Seeing one or more cars of one make in his neighborhood every day has a subtle influence with the man who is thinking of buying.

Then, if there should be a barren spot on the map, bend every effort to sell a car or two there, for they will sell others.

HERE'S A SYSTEM THAT TELLS TRUTH

Cards and Stock Check up as They Should

Have you an inventory system in your stock room? Is it one of those perpetual inventory systems? If so, does it tell a true story? Is it kept up and made to give its full value?

Motor World's hat is off to Harry Wright, stock and service superintendent for the Moriarity Motor Co., Kansas City. So many of these stock systems are not kept up that the Motor World representative who recently called at this place pulled out a card from the inventory drawer and asked Wright if the figures and stock always agreed.

"Certainly!" he replied.

Up the ladder he went. Three different cards were tried out and each time the story they told was correct. The bins held just what the cards said was there. A perpetual inventory system is a great thing, but is not giving its full value if it is not kept accurately—if it doesn't tell the truth.

This Garage Advertised Its Tire Sale Through a Parade and a Brass Band



And the Idea of a "Noise Stunt" Paid, as the Records Show

Preceded by a band in a motor truck, six horse-drawn trucks loaded with tires of all sizes, plain and non-skid, paraded through the business section of Detroit for over 6 hours, Saturday, Oct. 23. Banners attached to the trucks and others carried by bearers told the story, namely, that the M. & F. Garage, 527 Gratiot avenue, was going to hold a tire sale.

That the idea of a noise stunt was a good idea, is evidenced from the record of the first day's sale. Close to 800 tires were sold between the hours of 7 a. m. and 12 p. m. and the salesroom was closed at midnight only because Fisher and his aids could no longer stand on their feet, being tired out.

"It cost us in round figures about \$120," said R. F. Fisher. "The band was paid

\$42.25; the cost of hiring the motor truck was \$12, for the use of seven horse-drawn trucks we paid \$36, for banners, painting signs, and miscellaneous things we disbursed the balance of \$30.75. I am quite positive that I sold many tires to owners who had never heard of my place of business until they saw the tire parade, and that many more sales will follow."

200% RETURN FROM 100% COURTESY

**One Intelligent Floor Boy
Would More Than Pay
for His Keep**

The greatest and most appreciated service is that which costs the dealer little or nothing in dollars and cents. Service is of many grades. Often it is falsely considered to be the gift of parts or labor to the owner of the car. Basically it should be that which assures him a fair deal and gives prompt and courteous attention to his needs.

One of the greatest service examples—the kind which does not consist of costly donation—is found in the Hotel Muehlebach in Kansas City, where the National Association of Automobile Accessory Jobbers recently held its autumn convention.

Courtesy a Fine Art

Attention to the guest, and courtesy, are made a fine art. On the lobby floor are six bell boys. Pages would be a better term for them. Whatever they may be elsewhere they are gentlemen on the floor.

Should one man stop to talk to another who is sitting a chair is immediately placed back of the man standing. Unaccustomed to this in his travels, he acts surprised the first time it is done.

Should a guest sit down to smoke and there be no ash tray at hand, one is immediately placed beside him. Should he start across the lobby to mail a letter a boy takes it from his hand and drops it in the box. Should he, while standing in the middle of the floor, begin to search his pockets as if for a match, one is lighted and placed at the end of his cigar.

Should a woman enter the door—apparently a stranger, for the boys know the guests—a boy meets her and, should she so desire, ascertains her needs and eliminates the necessity of walking through the lobby, which is embarrassing to some women.

Thoughtfulness Well Applied

When a boy brings ice water to a room he says: "Do you wish a glass now?" And if so he pours and brings it. If a boy has gathered up a discarded paper and sees a guest who looks as if he might care for it it is handed to the guest. No person carries his own baggage in or out.

There is a head floor man on duty from 7 in the morning until midnight. If he sees an opportunity for service which has not been noticed by one of the boys a gentle snap of his fingers brings



The front of the folder used by Bullard's Garage to advertise its accessory business

LETS CUSTOMERS KNOW THAT ACCESSORIES ARE CARRIED

By way of making known the fact that it handles a complete line of accessories and supplies, the Bullard Garage, Greenwich, Conn., has had prepared a mailing insert in the form of a folded card. The card, which is illustrated herewith, does not refer to any particular articles, but is broad enough to include the whole line.

the service. The boys move swiftly but not hurriedly. Where they come from seems to be a mystery at times, for they bob up so unexpectedly with the things one needs. They seem almost to read a man's thoughts.

A floor boy in the dining room, expecting and getting no tip, will stop to light the cigar of a diner. And in all these little services the boys expect no tip. They perform the act and hurry away. There is no lingering around.

What does it cost the hotel? If the boys did less they would cost just as much. There are boys in all hotels, and the force probably costs all hotels about the same, but not all hotels give Muehlebach service.

That's Real Service!

Many times during the jobbers' convention the remark was passed: "That's service!"

In the salesroom or garage what possibilities are opened up by this example! One hundred per cent courtesy and attention to those who come in would yield a 200 per cent return. One intelligent and gentlemanly floor boy—or man—would more than pay his salary in the long run. Cooperation of every individual in an organization toward this end would—What wouldn't it do?

WHAT IS 10 AND 5 OFF

A western supplyman is still trying to make a customer understand why 10 and 5 off is only 14½ off. In all the schools this customer ever attended 10 and 5 made 15 and he is unwilling to concede that the three R's have been altered in these days of modernism. Nothing off is not so confusing and is far more profitable.

MEN DON'T TRY TO SELL ACCESSORIES

**Lack of Initiative Puts These
Men in Mediocre Class**

Why does it seem difficult for the motor car salesman to sell accessories? Why does he concentrate on the sale of cars and neglect this other department of the business when there is such a department?

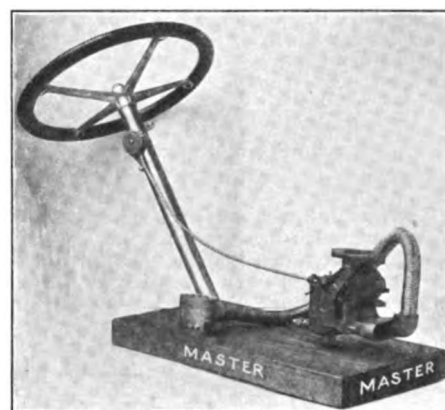
In a number of businesses where both accessories and cars are sold this condition exists. One proprietor said: "It is hard to get them even to walk across the salesroom to the supply department, let alone sell anything out of it."

Undoubtedly it is the old dog and the new trick; also it is a lack of initiative on the part of the salesman. Complaints are made of the mediocrity of motor car salesmen and many of them are justified. The salesman who is not sufficiently alive to wish to make an attempt at least to carry out the wishes of the house and who is not keen and on the job for every opportunity there is to improve his own financial condition must of necessity be classed as mediocre.

The complaint is not that salesmen do not sell anything except cars; the complaint is that they do not even try.

DISPLAY HELPS FOR THE DEALER

There are many devices which are supplied by accessory manufacturers to their dealers for the better display of merchandise. One is illustrated herewith. Manufacturers who supply these devices are urged to forward photographs or sketches of them.



The Master Carburetor Co., Detroit, is supplying the carburetor display stand illustrated. One of the latest instruments is mounted on the stand together with a steering wheel. The wheel is used to show how the control of the air is attached to the steering column. On the sides of the base the name of the instrument is displayed. Such a stand is a stimulus in many ways, for it suggests to the customer in the store that he can readily install the Master. It is like the billboard, staring at the customer every time he enters the store.

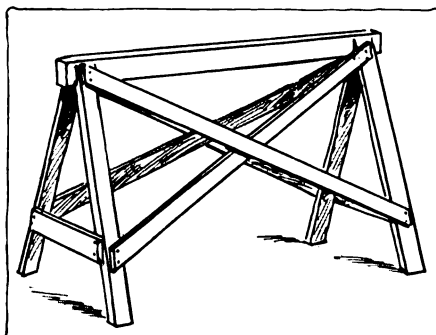
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Bracing a Horse

(No. 315)

In using either wood or iron horses about the shop it is important to remember that the strength of the horse is immeasurably increased by diagonal bracing. In other words, a very light horse may be used if it is carefully braced in this manner.—George B. Cortelyou, Brooklyn, N. Y.



(No. 315)

Diagonal bracing on a wooden horse

serted at the ring joint, are expanded as much as required, and then locked in place by the wing nut.—George B. Cortelyou, Brooklyn, N. Y.

Valve Remover

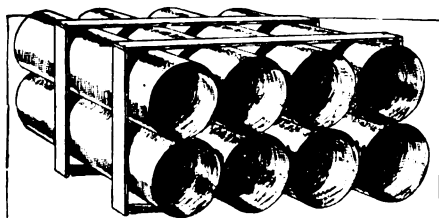
(No. 319)

A valve remover which is constructed of three pieces of flat stock is shown herewith. The material is tool steel measuring $3/16 \times 3/4$ in. The two outside pieces are riveted together at the handle end and the inside piece is pivoted to them as shown.—Albert Pohl, Hersh Bros., Elizabeth, N. J.

Storage in Stovepipes

(No. 314)

The side curtains can be protected from the wear and tear incident to being exposed to dirt and oil and crumpling under the rear seat by the simple expedient of housing them in a length of stove pipe about 5 in. in diameter. One end is sealed up and the other has a removable cover. Stovepipes also make



(No. 314)

Stovepipes for storing sheet material

excellent containers for all sorts of sheet material about the shop. Several, arranged as shown, may be used for sheet asbestos, gaskets, sheet fiber, rubber, etc.—George B. Cortelyou, Brooklyn, N. Y.

Protecting Wires

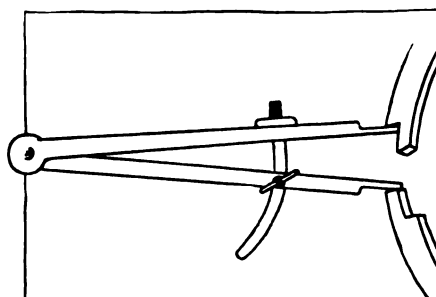
(No. 320)

Drop lights about the garage often give trouble due to the wear and tear on the wire as it lies around on the floor; cars run over it, and it is exposed to water and oil. A cheap means of protecting the insulation is to encase it in an old rubber hose, care being taken to prevent water from entering the ends. This is easily done by forcing the hose up on the handle and fastening it with a hose clamp. At the other end a pipe fitting may easily be made up and the hose screwed into it. The wire should be somewhat longer than the hose to prevent the former from being strained.—George B. Cortelyou, Brooklyn, N. Y.

Piston Ring Tool

(No. 316)

A broken dividers with the points ground, as shown, makes an excellent tool for removing piston rings of the step type. The divider points are in-



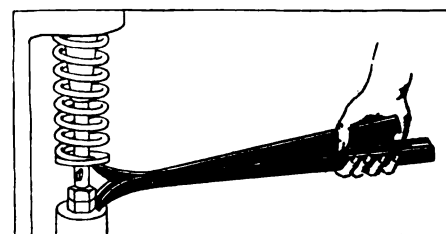
(No. 316)

Broken dividers as piston ring tool

Bearing Puller

(No. 317)

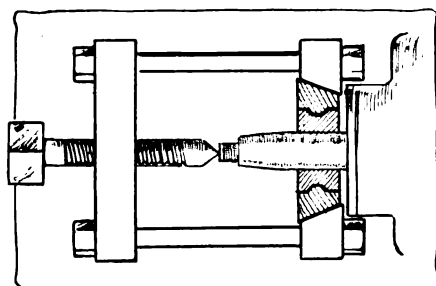
A puller for removing the inner races of magneto ball bearings is shown. The puller is first slipped over the race and then the two conical pieces are placed in the race grooves, the puller holding them in place. Then the screw is tightened



(No. 319)

Steel valve spring compressor

by means of a wrench and the race pulled off.—G. O. Reynolds, New Rochelle, N. Y.



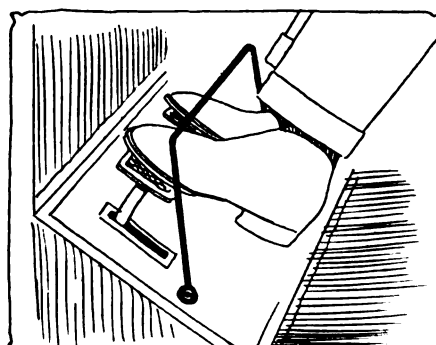
(No. 317)

Magneto ball bearing race puller

Robe Lifter

(No. 318)

Driving with a lap robe is always troublesome because it gets mixed up with the pedals. This difficulty may be overcome by making a stiff wire guard to hold the robe away from the feet and the pedals. Ordinary $3/16$ -in. wire will do. It is bent as shown and has an eye in each end of it through which a bolt passes to fasten it to the floor.—Fred H. Clifford, Bangor, Me.



(No. 318)

This keeps the robe off the feet

Tagging Parts

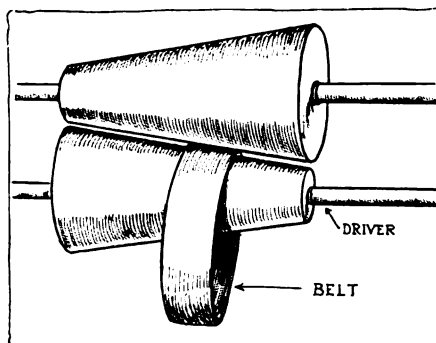
(No. 321)

All defective or worn parts removed from a car should be tagged and kept so that the owner may see them if he desires. This will prevent an owner from protesting that it was not necessary to make replacements of certain parts.—W. Wood, Packard Motor Car Co., Newark, N. J.

Variable Speed Drive

(No. 322)

Where a variable-speed drive is required two wooden cones with a continuous belt between them may be used to advantage. The speed is changed by moving the belt from one side to the other.—R. Vogel, New Rochelle, N. Y.



(No. 322)

Simple variable speed mechanism

Crankshaft Lap

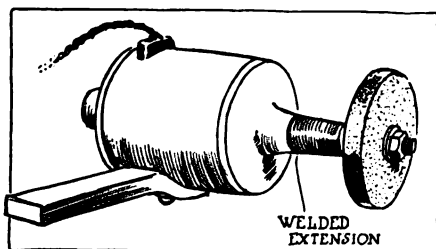
(No. 323)

The crankshaft lapper as shown here-with consists of a bronze casting made of two pieces hinged at the back and having an adjusting screw at the front.

The crankshaft is placed between centers in a lathe and this instrument is clamped around one bearing. The part of the tool coming in contact with the bearing is faced with sheet lead $\frac{1}{8}$ in. thick and this surface is coated with a mixture of flour emery and oil.

With the proper adjustment, which can be found with a little experience, the lathe is set rotating at 60 to 70 r. p. m. When one bearing is finished the tool is removed and clamped on another.

It is said that a six-cylinder crankshaft can be lapped in 4 hrs. After three or four crankshafts have been lapped, new sheet lead is required.—Hudson Service Station, New York.



(No. 321)

Grinder made from old electric motor

Electric Grinder

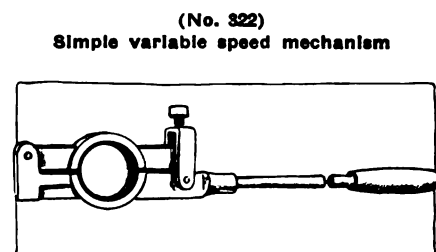
(No. 321)

Two dollars and a little labor produced the lathe grinder shown. The motor was a $\frac{1}{4}$ horsepower taken from an old vacuum cleaner and it cost \$2. An extension was welded on to one of the bearing boxes to provide additional bearing surface and the armature shaft was lengthened to correspond. The grinding wheel was then attached to the end of the shaft and the whole was mounted on the tool post of the lathe.—A. P. Heyer, Montclair, N. J.

Shaft Straightening

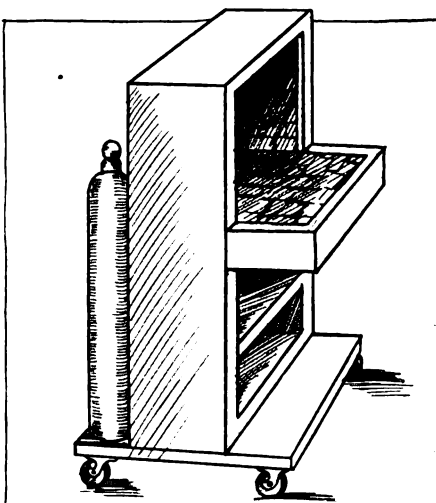
(No. 325)

A shaft, such as an axle shaft, may easily be straightened in a lathe without putting excessive strain on the lathe, providing the proper method is followed. The shaft should be heated to a red heat at the place it is bent and then should be placed in the lathe. The bend may be removed by applying pressure with a jack, as shown, and at the same time the other end of the shaft should be struck several times with a hammer. The blows of the hammer cause the shaft to vibrate so that it gives way under the pressure of the jack and is thus slowly



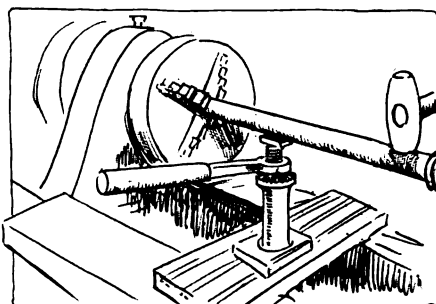
(No. 323)

Tool for lapping crankshafts



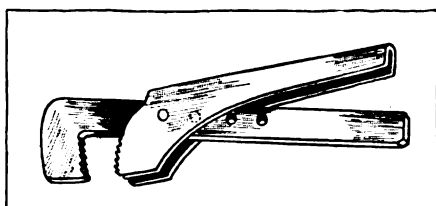
(No. 324)

Portable oxy-acetylene outfit



(No. 325)

Shaft straightening in the lathe



(No. 326)

Adjustable wrench made of sheet steel

brought back to its original shape.—W. Wood, Packard Motor Car Co., Newark, N. J.

Portable Furnace

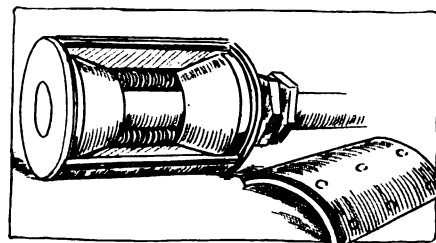
(No. 324)

A portable oxygen-acetylene outfit with furnace attached is a great convenience. As shown, the device is a box-shaped affair with the acetylene and oxygen tanks strapped to the back and the furnace lined with firebrick at the front. A shelf underneath provides a place for burner tips and tools. The structure is made of wood, covered with sheet asbestos, and sheet tin outside of this. Four large castors make it easy to push the outfit around.—A. P. Heyer, Montclair, N. J.

Cylinder Lap

(No. 327)

This cylinder lapper consists of an adjustable cylindrical member, about the size of the piston, faced with sheet lead. This member has a spindle by which it is fastened to the chuck in the drill press. The cylinder casting is clamped to the bed of the press and the speed is adjusted to about 110 r. p. m. Flour of



(No. 327)

Cylinder lap for use in drill press

emery and oil are applied and the machine is started.

The lapping member is given an up-and-down movement 60 to 70 times per minute. It is said that with this tool a cylinder can be lapped in 8 min. or less, which means that the complete job, including setting up, takes less than an hour, as against 2 days required to do a similar job by the hand method.

Driving Stuck Parts

(No. 328)

An air hammer is preferable to a sledge for driving a badly stuck part off its shaft. The rapidly recurring blows of the air hammer are more effective than the slower and heavier action of the sledge. Further, there is danger of bending or springing a shaft with a sledge, while this risk is minimized when the air hammer is used.—W. Wood, Packard Motor Car Co., Newark, N. J.

Adjustable Wrench

(No. 326)

A handy adjustable wrench made out of $\frac{1}{8}$ -in. sheet steel is illustrated here-with. Member A fits inside member B and both are made by folding over the sheet steel and then cutting it to shape. The gripping jaws are filed and hardened.—Ernest Jones, Hackensack Auto Co., Hackensack, N. J.

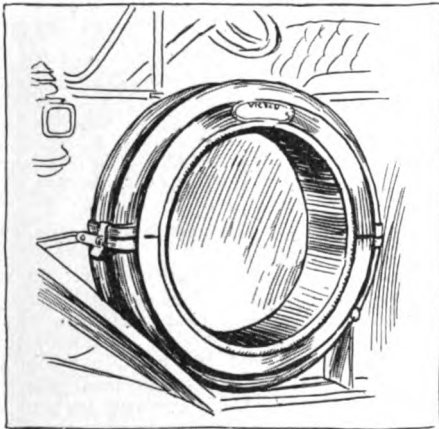


ACCESSORIES & SUPPLIES :

DIAMOND CARBURETTER

Diamond Carbureter Co., Jersey City, N. J. PRICE, \$12.50.

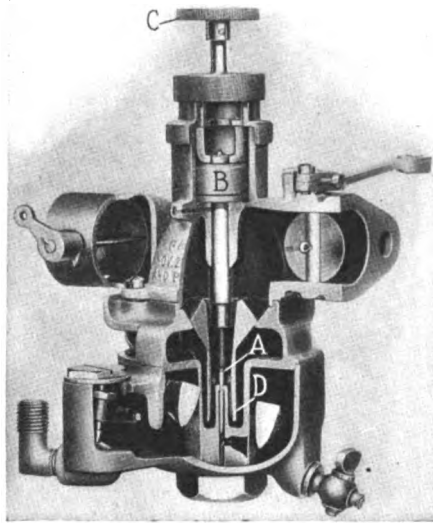
The main features of the Diamond carbureter are of conventional design, but it has an ingenious arrangement for providing a rich mixture when the throttle is opened suddenly. Also the air valve action is steadied in an unusual manner. The mixture is controlled by a lifting valve which controls both air and gasoline; a metering pin A varies the fuel opening as the valve rises and falls. When starting, all the air passes downward through the central well around the valve stem and up through the opening in the valve. The stream of air is divided, however, when the engine speed increases and the valve is lifted by the suction, allowing air to pass around it. When the motor is running idle or throttled low a



Victor tire holder, full enclosed type

little gasoline collects at the bottom of the well around the foot of the nozzle. The first air drawn in must bubble up through this gasoline, and a rich gas is the result. When the valve lifts the air no longer passes through the little pool of gas. The plunger which is used to steady the action of the valve is prevented from sticking in the dashpot by the fact that it consists of a solid cylinder of graphite which is always self-lubricating.

Dripping of gasoline is prevented by the fact that there is no outlet or intake below the level of the throttle. The only adjustment is that of the metering pin, and this is carried to the dashboard. The several sizes made are all sold at the same price and all are exactly alike in design.

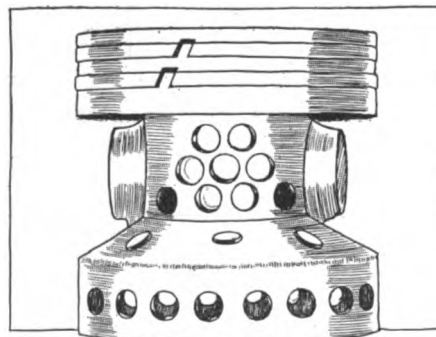


Diamond automatic carbureter. A, metering pin. B, solid graphite dashpot plunger. D, hollow stem of suction-actuated air valve

VICTOR TIRE HOLDER

International Stamping Co., Leavitt & Kinzie streets, Chicago. PRICES, \$4.50 to \$12.

This Ford tire holder is made in three sheet steel sections and completely encloses the two tires which it will take. The Duplex is another model which is like the Victor except that it encloses only the lower half of the tires. The Simplex is like the Duplex except that it holds only one tire. The price of the Victor for 30 x 3½ is \$10; this does not take demountable rims; the demountable rim type costs \$12. The Duplex 31 or 32 x 3½ costs \$4.50 and 36, 37, 38 or 40 x 5½, \$7. Prices of the Simplex tire holders range from \$3 to \$5, according to size.



Zephyr extreme light-weight piston drilled for oil drainage and weight reduction

IMPERIAL OXY-ACETYLENE OUTFITS

Imperial Brass Mfg. Co., Chicago. Agents, W. E. Pruden Hardware Co., 260 West 52nd street, New York. DEALERS' PRICES, No. 4, \$80; No. 1, \$60.

No. 4 is a combination outfit that can be used for welding, decarbonizing and cutting and includes a welding torch with extension and 7 tips, cutting attachment with 3 tips and 1 housing, decarbonizing torch and hose, oxygen regulator with one 3,000-lb. gauge and one 200-lb. gauge, acetylene regulator with one 500-lb. and one 50-lb. gauge, two 12½-ft. lengths of hose, assortment of welding rods, welding flux, goggles, wrench and hose couplings. A two-wheeled truck costs \$10 extra and a carrying case \$5. A smaller equipment, No. 1, includes a welding



An Imperial oxy-acetylene outfit

torch with 10 tips, oxygen regulator with high and low pressure gauges, acetylene regulator with gauges, cylinder connections with hose and valves, high pressure hose (two 12½-ft. lengths), wrench, goggles, assortment of welding rods and fluxes. This outfit is packed in a wood case.

ZEPHYR PISTONS

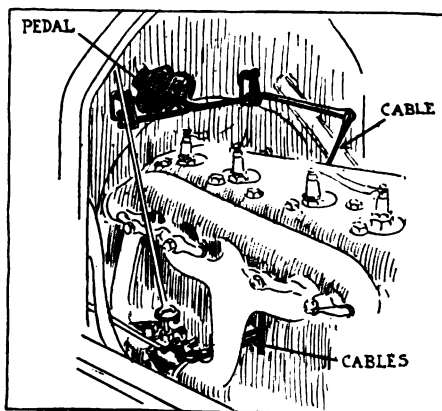
Wridgway Co., Wilkes-Barre, Pa. PRICES, from \$25 per set of 4 upward.

Extremely light pistons of the hour-glass type are made for Fords and other motors. The rings are in the upper part, the piston pin bosses in the central part, which is of smaller diameter than the top and bottom, and the lower part is drilled with holes for lightness as well as for oil drainage. The central part also is drilled for lightness.

PACO ACCELERATOR FOR FORDS

Peoria Accessory Co., 607 South Washington street, Peoria, Ill. PRICE, \$1. DEALERS, 60 cents.

The throttle of the Ford is actuated by a small pedal which, however, is not attached either to the footboards or to the cylinder head, so that these can be removed without interference from the accelerator. The action of the accelerator is separate from that of the hand throttle. The pedal is so balanced that the weight of the foot is supported. The pedal projects through a small opening in the dashboard and connects with the throttle through a steel cable which passes between the cylinders.



Paco foot accelerator for Fords

OAKES KRANKLOCK

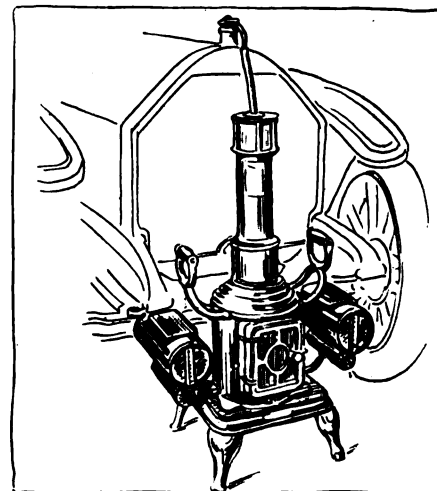
The Oakes Co., Indianapolis.

A starting crank holder, license holder and lock are combined in a single fitting designed for attachment to the front end of a Ford. Fastening is effected by two bolts already on the car. A double-armed member holds the crank rigidly in place and a padlock slipped through holes in the arms locks the crank when the car is left standing. The license holder is at the bottom and has two long slots so that any width of plate can be attached. The device is made of pressed steel.

NEVEROUT GARAGE HEATER

Rose Mfg. Co., Philadelphia.

A kerosene heater with a safety screen around the blue-flame burner is surmounted by a copper heating coil, the top of which is connected to a rubber hose which is inserted in the filling cap at the top of the radiator while the bottom is connected by a hose to the bottom outlet of the radiator. The water circulates through the cooling system of the car by thermo-syphonic action and the heat thrown out from the radiator is said to be sufficient to keep the garage moderately warm in cold weather. The heater will burn from 36 to 48 hrs. on a single

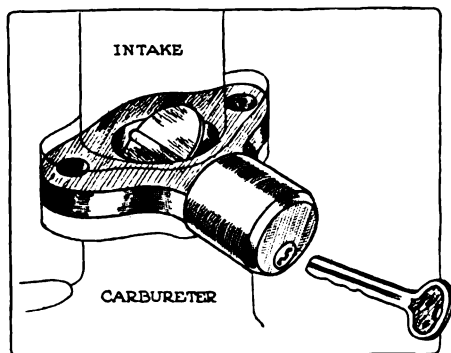


Neverout kerosene garage heater

PARKIN MANIFOLD LOCK

Parkin & Son, 2517 North Broad street, Philadelphia.

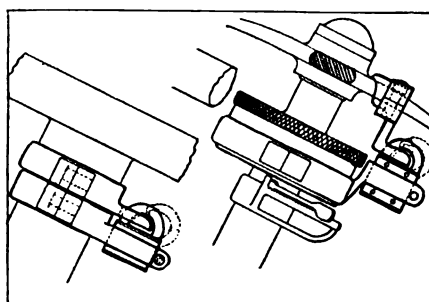
A fitting containing a butterfly valve is placed between the carbureter and the intake manifold; it has a projection into which the stem of the valve extends and a lock which, when the key is turned, secures the stem so that it cannot turn. By turning the valve to closed position and turning the key in the lock the ingress of vapor to the motor is prevented. Complete manifolds are also made, with the lock and valve incorporated, ready for installation.



Parkin lock for intake manifold



Oakes crank lock and license holder



Dietz steering wheel lock. Right, Ford type

COX CADILLAC BUMPER

Cox Brass Mfg. Co., Albany, N. Y. PRICE, \$6.50 to \$10, according to style and finish.

A special bumper for Cadillacs differs in several respects from other bumpers of the Cox make. Attachment is made by brackets which reach up over the spring horns. The two bolts which hold the splasher to the mudguard and frame are replaced by two longer ones which are supplied with the bumper, and these are the only bolts required; no drilling has to be done. Where the bracket goes over the end of the frame it is secured by a special lock nut on the regular shackle bolt. Channel, diamond and round bars are supplied, and the finish may be either nickel plating or black enamel.



Cox special bumper for Cadillacs

filling. By dividing the hose lines two cars may be kept warm simultaneously without any additional fuel expense.

STEERING WHEEL LOCK

Henry Deitz, 416 West Fourth avenue, Denver. PRICE, \$2.50.

Two collars are attached, one to the steering column housing and the other to the shaft. To lock the wheel a padlock, which is secured in the lower bracket, is slipped through a hole in the upper bracket and snapped. Three holes are provided in the upper member so that the wheel will never be far from a locking position. In the Ford model, which sells for the same price, the upper member attaches directly to an arm of the steering wheel.

MOTOR WORLD

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Price-cutting Will Die If—

WHEN dealers and garagemen form associations they are prone to make the price-cutting problem one of the first objects of attack. Motor World asserts, as it has asserted before and as is borne out by much experience of organizers, that it cannot be done that way.

No rule against price-cutting can be enforced by such organizations as are formed in the retail end of the trade, and any attempts to enforce such rules must meet with failure—and this failure serves only to weaken the association as a whole.

The association is weakened because it apparently has shown itself weak and incapable of accomplishing the objects for which it was formed; the members get a what's-the-use? feeling and are inclined to desert. But they have no more cause for such a feeling than they would have for losing faith in the motor car industry because a little runabout won't go 106 miles an hour. It is not a task for such a car.

When the Dealer Awakes

At a recent garage association convention a member laid before his co-workers the correct solution of the problem. The solution goes away back into the root of the matter. Briefly put, it is: "When the garageman and dealer are educated to what good business is, price-cutting will take care of itself." And that is true.

The man who knows what it costs him to do business is careful to keep above the danger limit. He knows he cannot make money and give it away at

the same time by cutting prices. When he is awakened to the true situation as it affects himself he will be as keen to eliminate trade evils as he now is to cut, foolishly thinking that by cutting he is beating his competitor.

True, he is beating his competitor—to the bankruptcy court.

Tires Separate

THERE are few dealers and garagemen who realize the genuine advantage of careful analysis, and this applies particularly in the sale of accessories.

It is a human failing to jump at conclusions—and, generally, these jumps get the jumper exactly nowhere. In other words, he has lumped all his business together, examined the total, and said, "Pretty good; cleared a nice profit on accessories this month."

As a matter of fact he may have done nothing of the kind. All that profit may have come from the sale of tires or car parts—but particularly tires. Tire sales are big in the amount of money they bring in as compared with the sale of other accessories of the usual variety, and unless this business is accounted separately there is danger that the dealer will fool himself. His net profits may be satisfactory, but he has no means of knowing what part of the load the tires are carrying.

This is where analysis is valuable. The sales, including tires, must be analyzed and the amounts received from tires placed by themselves. The same applies to the sale of car parts. Only in this way can the dealer be certain that his accessory department really is paying. If the analysis shows him that practically all the gross profit is coming from the tires or car parts—which is not unlikely—then it is time to find the reason why accessories are not bringing in their share of the profit.

Motor World's Simplified System of Garage Accounting

ONE of the greatest needs in the dealer and garage trade has been met by Motor World. It is the need for a simple and efficient system of accounting, a system that is not complicated yet which will tell a man the true story of his business.

Many dealers and garagemen know that certain hidden forces are at work in their businesses; they think they are making money in some departments and losing it in others, but they have not a system that will tell them how or where.

Many such tradesmen have asked Motor World for a simple yet efficient system. Motor World tried to find one, but there was none. There are systems for other businesses, but they will not fit this business.

Therefore a system was built—carefully and slowly. It has been made simple and easy of operation. More information about it appears on page 9.

Another Cent Added to Soaring Gasoline Price

New York Garagemen Now Getting 22 Cents Retail and in Northern New Jersey It Is 19 Cents—Detroit Getting 13 Cents

NEW YORK, November 4—Another advance of 1 cent occurred last week in the gasoline field. Garages in New York are charging 22 cents a gal. for gasoline. During the summer the low price was 16 cents. The price of gasoline in northern New Jersey to the owner has been increased 1 cent to 19 cents by delivery wagons.

In Philadelphia gasoline has been advanced 1 cent to 15 cents a gal. In Boston there was a 1 cent advance, the quotation now being 19 cents on the tank wagon basis. Standard Oil in that city has advanced the price 1 cent to 19 cents, tank wagon basis, meeting the earlier advance of the independents.

The Standard Oil of Nebraska has advanced the price of gasoline on tank wagon basis to 13 cents a gal. and has made corresponding advances throughout its entire territory. In Omaha, the price has been advanced $\frac{1}{2}$ cent to 13 cents, tank wagon basis. The last 30 days has seen a rise from 10 cents, the low price this summer, and in fact the low price since March.

The Atlantic Refining Co. in Pittsburgh has advanced gasoline 1 cent a gal. to owners. Gasoline is now quoted at 17 cents a gal., 68-70 deg., 19 cents, and 76 deg. at 12 cents. The prices on March 31 were 9 cents, 11 cents and 13 cents, respectively.

In Detroit gasoline is selling at 13 cents at practically all filling stations and garages, whether received from Standard Oil or some other company. This is an increase of 1 cent over the former price, which itself had been raised 1 cent, from 11 to 12 cents.

Studebaker Dealers Gather in Detroit

DETROIT, November 5—Studebaker dealers to the number of about 50 from the territory covered by the local branch of the Studebaker Corp. were the guests of officials of the concern at a luncheon and business conference held November 2. This was the sixth business conference or meeting of the kind inaugurated a week ago, whereby the officials of the corporation will go to meet the dealers instead of the dealers coming to the corporation's headquarters. Thus far, Chicago, Minneapolis, Omaha, St. Louis, Kansas City and Detroit have had these meetings. The next will be held in Boston, Philadelphia and New York. At yesterday's meeting here the dealers were addressed by L. J. Ollier, vice-president



C. W. EVANS
Davis and Vixen
Grand Rapids

District Representatives

XXXII

This is No. 32 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

C. W. Evans, who is district representative for Davis cars and Vixen cars and motors, with headquarters at 327 Terrace avenue, S. E., Grand Rapids, has a territory which includes all of the state of Michigan south of Saginaw. He made his start in the motor car sales field only two years ago, holding the position of general sales agent for the Saginaw Cycle Co. and making a success of it. He left the Saginaw company to take up the work in which he now is occupied.

in charge of sales; James G. Heaslet, vice-president in charge of manufacturing; H. A. Biggs, advertising counsel.

Clean Windows and New Goods Will Bring Success

Mills More Than Doubled His Trade by These Means—Best Policy to Get Full Price

Editor Motor World:

In regards to general merchandising wish to say that we pay very strict attention to keep our show windows always neat and lively. We change the display once a week and as we have the windows cleaned every week that gives us a chance to make the change. My experience has been that if one is alive to the fact that he must keep a clean store and also keep the stock moved around and dusted and put before the customers so they can see, he will have no trouble in selling the goods, providing his stock is kept up and contains something they want.

In buying I always try to carry the kind of goods my customers are in the habit of calling for and always something new to show them we are alive.

If one has the same ding-dong stuff all the year around, he does not awaken the interest in his customers, and the result is he goes and spends his money somewhere else.

Our policy is once to get a customer to try and make him come always. And the only way is to have new things and new ideas.

We are always trying to get new customers, not through price-cutting, but by giving courteous treatment and prompt service. It is never any trouble for my clerks or myself to show goods or to help anyone out of trouble. And

that gets us a lot of business. Last September we did about \$1,000 worth of business, and this September we did \$2,785 worth.

So you see it pays to be alive and on the job. If you are not, they go to the other fellow, and that is no money in your cash drawer. The best policy is to get full price, and hand the customer high-class goods with the service and reputation behind them. Sell the customer what he asks for and don't try to palm off an inferior grade of goods and everybody is satisfied.

JOHN A. MILLS.

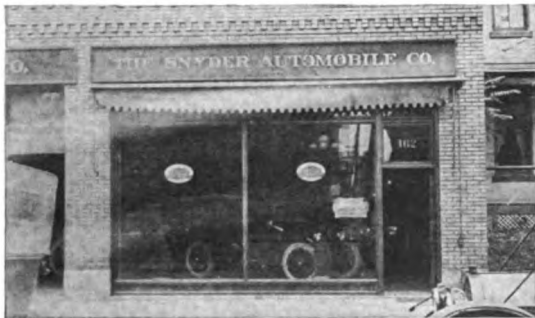
Norwalk, Conn., October 17.

Maxwell Aiding Dealer Finances

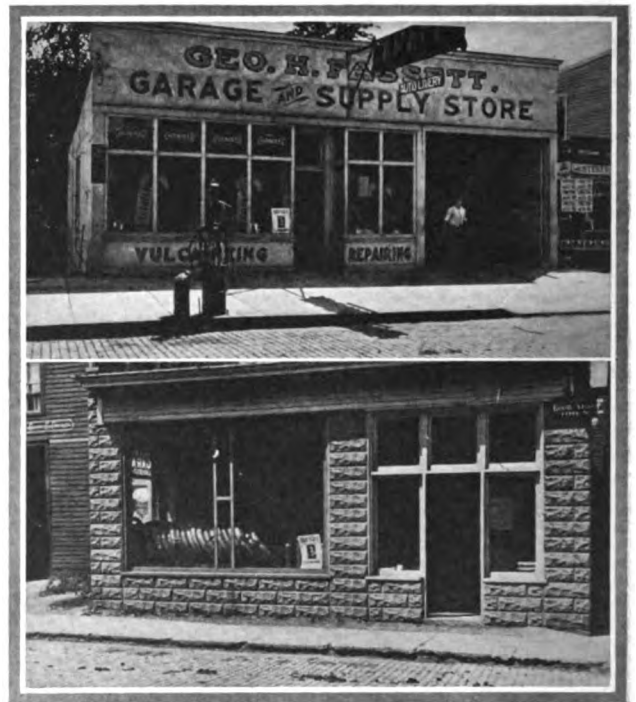
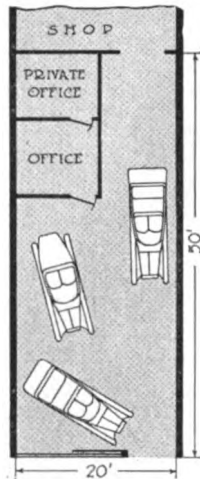
DETROIT, November 5—The Maxwell Motor Co. has decided to use part of its surplus by making deposits in banks in different parts of the country where Maxwell dealers are located and enable the latter to get loans from the banks in order to be able to pay cash for cars ordered in December, January and February, during which months sales are almost always at a minimum. The arrangement between the banks and the Maxwell company is to be with the understanding that the dealer will be given credit equal to the company's deposit, the interest to be not more than 6 per cent.

The dealer is to provide out of his own resources about one-fourth of the purchase price while the balance will be made up from the loan, thus enabling cash payment on delivery of the cars. Certificates of deposit bearing 3 per cent interest will be accepted by the Maxwell company, the deposits being made for six months. The certificates will also be negotiable by special arrangement between the company and its banks. The dealer's notes will be collected by his bank.

Here and There in the Garage And Dealer Field



This is a good lay-out for a small showroom where space is limited. There is a large window and a small door, allowing the maximum space for the display of cars. The offices are compactly arranged at the rear of the room and cars are brought in from the back. It is the showroom of the Snyder Automobile Co., Columbus, O., Allen and Lewis distributor



What a contrast between these two pictures. These two accessory stores face each other and the Lincoln highway runs between them. One store is beautifully clean, has an excellent window display and plenty of signs to make known the business of the proprietor; there is also an electric sign. Which of these two will obtain the greater share of transient business?



This silent salesman allows any prospective purchaser to determine who owns a Buick in Massillon, O., and it gives him an opportunity to pick any of the names at random and learn of the performance of Buick cars. It is owned by the Wagner Auto Garage, and is mounted at one side of the entrance. The box is painted white on the inside and is fitted with two 16-candlepower electric lamps for night display

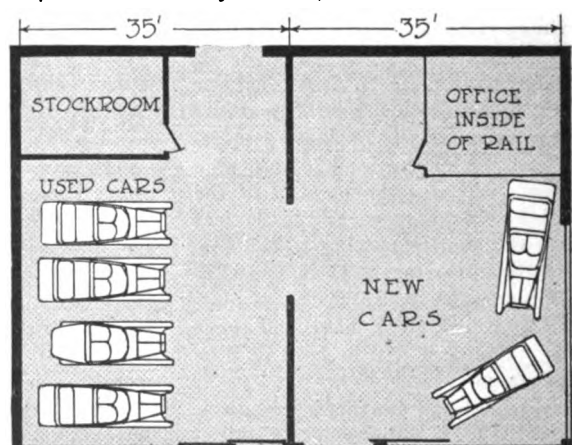


Ten thousand dollars worth of business done in this little shop the first year! It is owned by Joseph M. Maier, and is situated in Newark, N. J., a city of 350,000. Ignition and starting and lighting systems, only, are repaired. At the present time eight people are employed, including the proprietor and a stenographer. The rapid growth of the business is ascribed merely to good workmanship and careful treatment of customers, one man recommending another; little advertising, no circularizing or soliciting has been done. Maier, who has had an extended experience in this line of work, believes that there is a good opportunity for similar shops in every city of the United States



This is the place of business of the Chaplin-Killean Auto Co., Jeffery distributor in Clinton, Ia. Note the replica of the Jeffery emblem; it is 15 ft. in diameter

At the right—a salesroom for used cars and one for new cars, each a separate room yet both in convenient juxtaposition is the arrangement of the Northwestern Cadillac Co., St. Paul. The new car room is on a street corner.



The RETAIL NEWS

EAST

The Standard Supply & Equipment Co., 1710-12 Market street, Philadelphia, accessory jobber, will move to new and larger quarters at 13th and Cherry streets.

The Keystone Repair & Service Co. is preparing to erect a garage at 5117-19 Frankford avenue, Philadelphia. It will be of brick, one story high, and will cost \$2,000.

Charles F. Sine, Philadelphia, has awarded a contract for the erection of a one-story garage at 41st and Locust streets, to cost \$35,000. The building will measure 100 x 175 ft.

The Delmar Automobile Co., Wilmington, Del., Delaware dealer in Chase and Menominee trucks, has opened a garage at 103-5 Orange street, where it has also fitted up a service station for Oakland, Chandler and Mercer cars.

The French Street Garage, 119-23 French street, Wilmington, Del., owned by Andrew Johnson, is being enlarged.

The Stevens-Duryea Motor Parts & Service Station has been opened at 3001 Montgomery avenue, Philadelphia, and is conducted by Archie Thompson. The garage will accommodate 100 cars and is two stories high, 110 x 90 ft.

M. F. Chase, who recently took on the Apperson line for Boston, has formed a new company with himself as president and treasurer and S. P. Graves and M. P. Chase as directors. The company is capitalized for \$1,000.

H. F. Goodrich has taken the agency for the Enger cars in Boston, handled last season by the Wentworth-Fosdick Co. He is in the accessory business and has formed a new company, the Enger Motor Co., with a \$10,000 capitalization, to handle it. The officers are H. F. Goodrich, president; Samuel F. Bickford, treasurer; W. B. Fletcher, secretary.

The Poshimann Automobile Co., Cathedral and Chase streets, Baltimore, will open a department for accessories and Joseph R. Manuel will have charge. A. Trust Poehlmann is president of the company, which distributes the Chevrolet in Maryland.

The International Motor Co. will build a garage at 1006-1012 North Eutaw street, Baltimore. The building will be one story, 66 x 150 ft., of brick and reinforced concrete.

The Globe Realty Co. plans to build a garage on Oak street, between 25th and 26th streets, Baltimore, to cost approximately \$8,000. The building will be 74 x 115 ft. and will be one story, of brick.

Chrystal Ice, Chester street, north of North avenue, Baltimore, will erect a one-story fireproof garage 80 x 40 ft., to cost \$1,750.

The Chelsea Motor Mart, Chelsea, Mass., formerly the Tudor Garage, has moved to 175-179 Washington avenue. M. D. Dykman has become the proprietor.

John Perkins has bought the Princeton, Mass., garage from E. Merton Woodward. It was finished last June and Woodward closed it October 1, but Perkins has reopened it and will keep it open all the year.

Harry F. Bailey & Co. has opened a garage on Main street, Westfield, Mass. It is 75 x 135 ft., on a corner lot, and cost \$23,000.

The Willys-Overland Automobile Co., Springfield, Mass., will occupy the four-story building for which ground has been broken at the corner of Winter and Chestnut streets.

It will combine salesrooms and service station.

John H. Stratton, Milford, Mass., will occupy the new garage erected for him at a cost of \$100,000 at Lincoln square, within a few weeks.

Alma S. Butters has approved plans for a garage at the corner of Perry and Pond streets, Lowell, Mass.

Samuel L. Barrabee, for some years a partner of the Brophy-Barrabee Co., an accessory firm, Boston, has retired from the firm and gone into business for himself at 133 Columbus avenue with his brother Frank.

The Saxon Motor Vehicle Co., Providence, R. I., moved last week from 90 Mathewson street to the corner of Snow and Washington streets, the salesrooms formerly used by the Providence Motor Car Co.

The New London Auto Station, Main street, New London, Conn., will build a one-story 22 x 105-ft. addition to its garage.

I. H. Rhodes and associates, Welch, W. Va., will build a three-story garage.

The Scripps-Booth Automobile Co., Philadelphia, will build a one-story garage, 25 x 120 ft.

Daniel Shipley, 10 West 36th street, Baltimore, will build a garage at 1104 West 36th street.

William Conway will build a garage on 59th street, Philadelphia, at an estimated cost of \$10,000.

Finnesey & Cobler, Philadelphia, will build a two-story garage, 36 x 190 ft.

Michael Kennedy, Troy, N. Y., will erect a garage at a cost of \$12,000.

The A. H. Shaffer Wagon Works, Harrisburg, Pa., will build a garage and repairshop on South Cameron street at a cost of \$10,000.

The Parks-Osgood Co., Malden, Mass., will build a one-story garage, 102 x 120 ft., at a cost of \$20,000.

Samuel Fishman, Harrisburg, Pa., will erect a garage on Evergreen street near Market at a cost of \$8,000.

Frank A. Glover, proprietor of the Auto Tire & Supply Co., Providence, R. I., has leased new salesrooms at the corner of Empire and Fountain streets.

F. H. Leneker, Stutz dealer, Providence, R. I., has opened salesrooms at Washington and Snow streets.

The Coburn-Draper Motor Co., organized at Boston to take over the retailing of the Maxwell, relinquished by the J. W. Bowman Co., has leased half of the Peerless building at 660 Beacon street for a sales and service station. Ralph Coburn, who has been identified with the Maxwell for 11 years and was manager of the New England wholesale branch, is president, and William H. Draper, of Providence, treasurer. S. W. Monroe has been sent on from the Detroit factory to take charge of the wholesale branch.

D. F. Sullivan, Ford dealer at Manchester, N. H., has moved into new salesrooms and service quarters at 98-100-102 West Central street.

Charles D. Demarest, Jr., Oakland dealer,

New Haven, Conn., has leased larger quarters at 45 High street.

The Duffy Motors Corp. has opened a salesroom at 1895 Broadway, New York, to handle the Standard six and eight.

C. R. Backus, proprietor of the Backus Tire Mart at Mystic, R. I., has leased a building on the north side of Main street at Westerly, R. I., and will fit it up as a garage and accessory store.

The Winchester, N. H., Auto Co. has increased its equipment by the installation of a 1,000-gal. gasoline tank and pump.

The White & Williams Co., of Westfield, Mass., has bought the Dougherty property and will erect a garage.

Frank X. Monat, of Huntington, Miss., has leased his garage there to the Williams Automobile Co., of Westfield, Dodge dealer.

Doria C. Favreau is building a garage on West Main street, Marlboro, Mass.

T. P. Watson has bought out the motor business of the George H. Tabor Co. at Houlton, Me., and has taken the agency for the Dodge.

George H. Gabb, Hartford, Conn., Haynes and Auburn dealer, has removed his salesroom to 435 Main street in The Linden. The old quarters at 230 Main street will be retained as a service station.

W. J. Chipman, Hartford, Conn., Mack and Saurer truck dealer, has established a service station at 341 Trumbull street.

The Britton Co., 121 Allyn street, Hartford, Conn., is razing the old building in the rear of the salesroom used as a garage and will erect a three-story service station. The lower floor will be used as a garage and the street level floor will be taken by the Pioneer Taxicab Co., a subsidiary of the Britton company. The third or top floor will be the repairshop; the paint department will remain in the old building. Stearns-Knight, Rauch & Lang and Baker cars and Federal trucks are handled.

MOUNTAIN

The Grady Motor Car Co., Salt Lake City, Utah, Reo dealer, will build a garage on Main street between Fourth and Fifth streets.

Charles Hartz has opened a garage at 4780 Gilpin street, Denver.

E. B. Lunbeck, who recently sold his garage at 1707 South Broadway, Denver, has opened a used car business at South Broadway and Mexico avenue.

The Auto Livery Garage, 1645 Court Place, Denver, has changed its name to the Central Garage. The new owners, Claude K. Boettcher and John G. Morgan, have made several improvements in the place.

W. E. Dinneen, Cheyenne, Wyo., plans to put up a new building on an adjoining site, to be used for a machine shop.

A. C. Friedman and Frank Sale, president and vice-president of the Western Double Tread Tire Co., 1241 Broadway, Denver, and Leo Jacobson are organizing a Utah corporation to operate a double-tread tire plant in Salt Lake City.

Philip Dolkart has bought out the Nowick Double Tread Tire Co., at 1320 Broadway, Denver.

L. E. Kelton, 1616 Broadway, Denver, Haynes distributor for Colorado and Wyoming, is now conducting his business under the name of the L. E. Kelton Motor Co.

Have you a proper accounting system in your business? Whether you have or not you should turn to page 9. Read the announcement of the Motor World Simplified System of Garage Accounting.

Robert Harris, Floyd Miles and Max Hagspiel have bought E. B. Lunbeck's garage at 1707 South Broadway, Denver.

E. M. Rohrer is building a \$10,000 garage at 313-315 South Broadway, Denver. It will be 50 x 125 ft.

PACIFIC COAST

Thomas Foulde, Los Angeles, will build a garage and machine shop on South Los Angeles street.

Anton Milovitch, Los Angeles, will build a garage and repairshop on Los Angeles street.

The Potlatch Mercantile Co., Mitchell dealer, Spokane, will build a garage, 100 x 150 ft.

W. L. Lindsay, Santa Ana, Cal., formerly in the automobile supply and accessory business at Oxnard, Cal., has secured the Orange county agency for Kelly-Springfield tires and will establish a tire depot with his father as a business associate.

P. Hickman, Oxnard, Cal., has purchased of W. L. Lindsay the Coultas & Lindsay Auto Supply & Accessory Co.

Bauer & Urban, 2222 South Central avenue, Los Angeles, are now located in their new garage.

Edgar Huyck and Boyd Hocker, San Bernardino, Cal., have opened a tire repairshop at 772 East Third street.

J. C. Corkhill, Maricopa, Cal., has leased the Ford Garage and repairshop.

Edward Dowd, Taft, Cal., has moved his garage from Main to Center street.

H. C. Appgar and J. Frank Smith, Huntington Park, Cal., have purchased the Corner Garage, formerly owned and operated by Moore & Stringer.

The White Garage, 816 South Olive street, Los Angeles, has opened an automobile laundry, making a specialty of cleaning engines and washing cars day or night.

The Glenn Auto Works, 443 South Figueroa street, Los Angeles, has opened a shop and is making a specialty of repair work on Chalmers cars.

H. A. Hansen, 122 East Tenth street, Los Angeles, has opened an automobile blacksmithing shop. Hansen's specialties are springs, forgings, framework, fender irons and tire and trunk racks.

C. E. Wickham, Los Angeles, proprietor of the Fifth Street Garage, has opened his third annex at 535 Maple avenue.

SOUTH

F. H. Tipton has opened a tire repairshop at the rear of the E. S. Curtice Automobile Co., in the "Old Jail," Meridian, Miss.

R. A. Roethke, Norfolk, Va., will build a garage, 90 x 197 ft.

NORTHWEST

R. W. Phelps, Tipton, Ia., has leased the Ross building and will establish a garage where Ford cars and accessories only will be carried. It will be known as the Phelps Motor Co.

Turnbull Bros., Farragut, Ia., will enlarge their garage and machine shop.

J. A. Viktor & Son will open a garage at 43-45 16th avenue, west, Cedar Rapids, Ia., after January 1.

Fred Cochran is erecting a building, 20 x 40, at Lacey, Ia., for use as a garage and repairshop.

R. W. Mason has opened the West End Garage in Missouri Valley, Ia. He has a new building, 50 x 100. Gas and oil will be sold from pumps at the curb and free air provided.

The White Garage, Cumberland, Ia., soon

will be located in its new building, 50 x 110, of brick construction.

John Hanson and John Hadley, of the Waterloo Overland Co., have approved plans for a four-story garage and district headquarters at East Fourth and Franklin streets, Waterloo, Ia. Bids will be opened this month. The building will cost approximately \$100,000.

August Koehler, Unionville, Ia., has completed construction work on his new fireproof garage.

Frank Page is building a large addition to his garage on South Cedar street, Monticello, Ia.

Oliver Mahler, Bagley, Ia., has bought a site and will at once start construction work on a new fireproof building of cement blocks, 60 x 50, one story high, which will house his garage business.

Splinter & Holscher, garage proprietors, Earlville, Ia., are installing an electric generating outfit for the charging of storage batteries and are adding machine tool equipment.

N. A. Nelson has opened a garage at Bode, Ia., in the building formerly occupied by Orrin Gullixson near the Bode hotel.

O. C. Engebretson, Hampton, Ia., has purchased the Blake & Wagner garage at Ackley, Ia., together with the ground and brick building, for \$26,000.

H. H. Hughes has bought a corner location at Clio, Ia., and will build a garage.

Martin Martinsen will build a garage at Cascade, Ia., 60 x 120, with machine and repairshop 40 x 50, and office 12 x 16.

White Auto Sales Co., Sioux City, Ia., has filed articles of incorporation with a capital stock of \$10,000. The incorporators are Edward A. White, Ray M. White and Julian White.

O. R. Pickering, Geneva, Minn., has fitted up the old hotel building for a garage.

H. A. Walker, Northfield, Minn., has opened a repairshop in the Scriber blacksmith shop.

Math Freske, Parkers Prairie, Minn., will make an addition to his blacksmith shop for a garage and machine shop.

Walter and M. A. Crandall, Fairmont, Minn., have bought the new garage on Blue Earth avenue.

Tom Smith, Madison, S. D., is building a garage 75 x 132 ft.

Dick Brown, Geraldine, Mont., is erecting a garage.

Washington Mast, Lavina, Mont., has taken over the Lavina Garage.

D. E. Countryman, Canova, S. D., is erecting a garage, 50 x 100 ft.

The W. C. Nissen Automobile Co., Aberdeen, S. D., will open a branch at Watertown, S. D., to handle Studebaker cars. A store in the Odd Fellows' block is being opened for the purpose.

The Auto Chain-Pull Co., Center, S. D., has been incorporated for \$50,000 by Ray E. Watson and D. Fay Case, of Center, and F. C. Wick.

The Overland Reynolds Automobile Co., Fargo, N. D., will establish a branch at Grand Forks, N. D., in the New Hampshire building. A. R. Walker, connected with the Moore Auto Co., will have charge.

The Minnesota Motor Car Co., Minneapolis, has bought property at Nicollet avenue and 16th street for a two-story brick building for

a garage and seven stores. The building will cost \$50,000 and is for the Chevrolet sales.

W. C. Norris, Tulsa, Okla., Oldsmobile and Marmon dealer, has moved to new quarters at Second and Detroit streets.

The Sutton-Detroit Motor Car Co., Oklahoma City, has moved from its former location on First street to new quarters at 312 North Broadway. The concern is state distributor for Mitchell and Interstate cars.

The Detroit Motor Car Co., Detroit, has opened branch salesrooms at 676 Woodward avenue in charge of W. J. Clemens. Clemens disposed of the Clemens Motor Sales Co., Buffalo, to take his present position.

The Curtin-Williams Auto Co., 207 North Fourth street, Columbus, O., has purchased the contracts and good-will of the Brasher Motor Car Co., former Cole dealer, and will carry on the Cole dealership.

W. W. Price, who has conducted a garage at Elm Grove, W. Va., for several years, will erect a new garage three stories high adjoining his present quarters on Main street.

The Westcott Automobile Co., Brooklyn, Westcott and Abbott-Detroit distributors, has opened a new salesroom at 1224 Bedford avenue. S. W. Kesler is president.

K. O. Brown & Co. is a new firm which has opened up at 53rd street and Eighth avenue, New York, as a dealer in tires, lubricants and accessories.

Dr. U. L. Meckley, Littlestown, Pa., will build a garage and salesroom at 240-242 York street and will handle the Chevrolet. M. E. Snyder, of Hanover, also is interested in an active way in the venture.

The Mallon Motor Car Co., Franklin distributor, Newark, N. J., has moved to a new salesroom and service station at 296-298 Market street.

The W. L. Huffman Automobile Co., Omaha, Neb., Hupmobile dealer, is moving into new quarters at 2102 Farnam street.

NORTHWEST

Henry W. Ware, Sioux City, Ia., will build a two-story garage at an estimated cost of \$18,000.

M. A. Miller & Son, Helena, Mont., will open a garage and repairshop at 426 Park street.

S. A. Roush, Friend, Neb., has opened a garage. The Dodge is handled.

Sam Hankins, Parshall, N. D., is erecting a large addition to his garage.

C. F. Hall and John Stevenson, Centerville, S. D., have formed a partnership and have obtained the Buick dealership.

F. E. Bates, Northfield, Minn., Ford and Overland dealer, will make an addition to his garage, 50 x 75 ft.

Ernest Iwerks, Humboldt, S. D., will open a garage in a cement block building, 44 x 80 ft., which is being built.

Roy Paterson, Northwood, N. D., has sold his garage business to Carl and Oscar Seltveit, De Lamere, N. D.

Cooper Bros., Lewistown, Mont., who sold their garage at Judith, Mont., to A. B. Lindsay, of Aurora, Ill., have opened a garage at 415 Broadway.

Oscar Gronlund, Menahga, Minn., is building a concrete garage, 25 x 50 ft.

Morgan & Rector, Truman, Minn., will be

proprietors of a garage, 50 x 142 ft., which is being erected.

The Motor Car Supply Co., Minneapolis, Minn., manufacturing Air Cure self vulcanizer, has opened a salesroom and office at 1311 Nicollet avenue.

L. H. Werham, Hamburg, N. D., is building a garage.

Harry Kotch, Sturgis, S. D., has bought an interest in the Wilson Auto Co.

Ted Applequist and George Paulsen, Fullerton, N. D., have formed a partnership and have begun work on a new garage.

Blwer & Lungren, Dresden, N. D., is a new firm in the automobile business.

Carter & Buckle, Eagle River, Minn., are erecting a garage, 50 x 50 ft.

The National Welding Co., Minneapolis, has opened a branch at 153 Sixth street, West, St. Paul. Joseph Carl is manager.

Walter A. Crandall and W. A. Crandall, Fairmont, Minn., have bought the F. L. McCadden garage.

Yager Bros., Wentworth, S. D., are remodeling the Bolser building for garage purposes.

Ruspino Bros., Crosby, Minn., are erecting a garage.

W. F. Brown and Knapp Brown, his son, Sioux Falls, S. D., are forming a partnership for the automobile business.

John Grill, Sherburn, Minn., is building a garage, to cost \$10,000.

M. S. Elliott, Paynesville, Minn., has bought the Witt garage.

McKay Bros. and J. C. Loveland, Dawson, Minn., have rented the Andrew Thompson building and will operate it as a garage and blacksmith shop.

H. LaBarre, Fort Benton, Mont., will erect a garage, 55 x 120 ft., to cost \$8,000.

Peter Matson, Ada, Minn., will build a garage, 75 x 140 ft., on East Main street.

Olaf Larson, Pingree, N. D., has bought the garage business of Archie Hicks.

Melvin Larson, Bristol, S. D., has bought the Sam Hofland interest in the garage.

E. W. Barrett, Huron, S. D., has bought the F. A. Castle garage.

C. E. Alford, Huron, S. D., has bought the business of the Key Automobile Co.

C. E. Jaberg, Sanborn, N. D., has bought the Sanborn garage from H. S. Swanson.

John Hopeman, Harmony, Minn., has bought the Wallace Maland interest in the Crowell-Maland garage.

John Elschen, Kellogg, Minn., has bought the Charles Lorenz interests.

The Daniel O'Toole Garage, Nashua, Mont., has been sold to Albert Neiss, of Whately.

C. F. Schweiger, Comfrey, Minn., has opened a garage.

John E. Dobbin and G. C. Davis, Billings, Mont., will build a concrete garage, 50 x 140 ft., to cost \$7,000, at First avenue N and 30th street.

Sanders Bros., Faribault, Minn., have opened a garage.

Guerin Bros., Red Lake Falls, Minn., will erect a garage, 32 x 60 ft.

Tibesar & Weiser, Minnetska, Minn., will build a garage and handle the Chevrolet.

H. O. Otterness & Sons, Kasson, Minn., will erect an addition to their garage.

C. A. Aldrup, of Lewistown, Mont., and A. L. Sykes, of Denton, Mont., have formed a partnership and bought the Ford garage from E. R. Roehl, Benton, Mont.

B. E. Fawkes, Oldsmobile dealer, Minneapolis, has begun erection of a building for headquarters for the district, at Hennepin avenue and Harmon place. It will be a

three-story structure with the repair department in the high basement, and will be 68 x 75 ft. The cost will be \$40,000. Adjoining the site L. H. Fawkes, father of B. E. Fawkes, will erect an automobile building.

Hutchinson Bros., Stratford, S. D., have opened a garage in the O. H. Docken building.

E. F. Henry, Flandreau, S. D., has bought the Bailey garage.

The Ahlberg Bearing Co., Chicago, has opened an agency at 926 Marquette avenue.

M. R. Sneed will erect a garage at 2212-2218 Hennepin avenue, Minneapolis.

C. M. Fitch, Minneapolis, will build a garage at 85 Western avenue.

Kruse & Johnson, Minneapolis, will make an addition to their garage at 1901 Fourth avenue, S.

SOUTHWEST

The Serlis Auto Co. has been organized for the distribution of the Briscoe in Kansas and western Missouri. The head of the company is Harry Serlis, of Kansas City. Branch Manager Reed of the Los Angeles office of the Pathfinder company will go to Kansas City as the manager of the Briscoe agency. Harry P. Vivian, factory representative, has opened temporary offices for the branch at 1702 Grand avenue. Permanent quarters will be opened for the Serlis company elsewhere later this fall.

Kendrick & Fath have opened a garage and repairshop at 118 East Franklin street, Clinton, Mo.

H. C. DeRacken, formerly joint owner of the Knob Noster (Mo.) Garage and repairshop with A. M. Williams, has acquired the latter's interest and now is sole owner of the business.

The Johnson Tire Co., Austin, Tex., has secured new quarters at 414 Congress avenue.

The Southern Motor Co. has been organized and will soon open for business on Myrtle avenue, in El Paso. David S. Russek is manager.

Autry & Bell, of Richmond, Tex., has built a new garage to replace the one that was recently destroyed by fire.

The Auto Laundry & Storage Co. has been organized at Houston and has established an automobile washing and cleaning room at 1218-1220 Texas avenue.

Wm. A. Freeman, Harrisonville, Mo., has purchased Fall's Garage on South Independent street and will operate it.

Wm. Davidson, Pleasant Hill, Mo., has traded his garage on Wyoming street for a farm of 160 acres.

W. O. Stonum, formerly proprietor of the Pacific Garage, and Mel Gelwicks have opened an accessory store and salesroom for Buick and Chevrolet cars in the building formerly occupied by B. E. Branch in Lamar, Mo.

O. Lantz and W. T. Burman have purchased O. T. Johnston's garage in Oskaloosa.

L. C. Morris, El Paso, Tex., will build a two-story garage at an estimated cost of \$2,000.

The Federal Truck Co., St. Louis, will build a garage, repairshop and machine shop, 150 x 182 ft.

Have you a proper accounting system in your business? Whether you have or not you should turn to page 9. Read the announcement of the Motor World Simplified System of Garage Accounting.

W. S. Turner and W. L. Votaw will establish a repairshop in Pine Bluff, Ark.

W. T. Wroe & Sons, Austin, Tex., Maxwell and Oldsmobile dealers, have added an accessory department and a free air supply station.

E. L. and R. O. Hoffman, Oakland and Maxwell dealers, Sterling, Kan., have taken quarters in the Gregg building on Monroe street, the former location of the Western Auto Co.

The Nauman Motor Sales Co., El Paso, Tex., will move from their present quarters on Myrtle avenue to the former Studebaker headquarters at 422 East San Antonio street. The company is Reo dealer and C. D. Neuman is manager.

The Commercial Auto Body Co. has removed its general offices and salesroom from 3003 Locust street, St. Louis, to the factory at 16th and Pine streets. The company manufactures commercial bodies and closed tops for Fords and bodies for truck manufacturers.

MIDDLE WEST

The Auto Equipment & Supply Co., Grand Rapids, Mich., has moved into its new quarters at 151 Michigan street.

Bolt & Lewis, Bancroft, Mich., accessory dealers, have moved into their new quarters in the City Hotel block.

The Lenox Garage, Richmond, Mich., has been purchased by J. J. Berney.

The Albion Garage, Albion, Mich., has located in its new building, Michigan avenue and Superior street.

The Electric Vehicle Service Co., Saginaw, Mich., which occupied the main floor of the building in which it is located, has made a deal whereby it will now use the entire building. The three upper floors had been used as a painting and trimming department by J. P. Beck, and this business will now be conducted by the Electric company.

J. A. Renchler, Cass City, Mich., recently opened a garage.

Ora and Searight Collier, Belding, Mich., have purchased the garage business formerly conducted by E. C. Wise and S. D. Goodman.

A. G. Faist, Chelsea, Mich., will have a new garage, 30 x 120 ft.

Sam Richards, Mayville, Mich., has opened a garage and will handle accessories.

J. O. Nelson, Marlon, Mich., will build a garage, 35 x 70 ft.

Arneeth Bros., Marquette, Mich., who recently became Apperson dealer, will enlarge their garage.

Bert Stephens, Brodhead, Wis., has purchased the former Roderick livery stable and is remodeling it into a garage and repairshop, 44 x 90 ft., two stories high, accommodating about 25 cars.

C. A. Kinney has sold the Colfax Garage at Colfax, Wis., to a new firm organized by Charles Paul and Edward B. Rosenberg, of Colfax, and styled the Paul & Rosenberg Auto Co. The company takes over the agencies for the Buick and Overland. Talvin Bronken is retained as mechanical superintendent.

The Schrader Motor Sales Co. has been organized in Ypsilanti, Mich., by Albert and Howard Schrader, who have the agency for the Studebaker. They have taken possession of the Huron Side Garage.

P. A. Peeters, Green Bay, Wis., has organized the Peeters Welding & Cutting Co., which is remodeling the Gehr building at Pine and Jefferson streets for its purposes. The concern will specialize in motor car work but will also conduct a general machinery repair business.

Milwaukee Independents Resort to Drastic Means

**Post Circular Stating Gasoline Is Now
Sold Less Than Cost and Lay
Blame to "Trust"—Prices
Hold Steady**

MILWAUKEE, WIS. November 6—Milwaukee motorists who patronize independent oil dealers were somewhat startled last week when the following announcement was received:

"YOU ARE AT PRESENT BUYING GASOLINE BELOW COST."

"This is because the oil trust is seeking to exterminate competition in one section of the country at a time. The fight at present is confined to this territory. Gasoline in the East sells for about 8 cents per gal. more than you are paying. This pays the cost of the extermination proceedings in the West. The matter is in your hands. If the trust succeeds you will pay dearly in the end, like the people in the East are paying now."

**THE INDEPENDENT OIL INDUSTRY
ASKS YOUR SUPPORT."**

The condition intimated in the circular is stated to be one affecting the entire northwestern states, prices for which territory are based on Whiting, Ind., quotations. There are five independent jobbers in Milwaukee who operate branches throughout the State of Wisconsin. Competition between the Standard and the independents has been growing fiercer every week and is particularly brisk in Milwaukee, where both sides are establishing filling stations on every other corner to get the motor car trade. The Standard is now building three filling stations, on the south, northeast and northwest sides of Milwaukee, to supplement stations established in these sections during the last year or two. Meanwhile, the independents are losing no time in establishing stations.

No further advance is noted in the scale of prices for gasoline, which made several sharp advances during September and October. Low test gas, denoted 59 deg. specific gravity, is quoted at 11.6 cents, tank wagon delivery in quantities of more than 100 gal. and 1 cent above for less deliveries.

Overland Mansfield Dealers Gather
MANSFIELD, O., November 6—Overland dealers in the territory for which the Herring Buggy Co. is distributor and which include Richland county and some adjacent territory, held a conference at the Overland garage here recently. Plans were discussed for the coming year's work, extending from October 1, 1915, to October 1, 1916. The local distributors have just closed the most successful year since it has engaged in the automobile business and the outlook for another big year is most

promising. C. E. Osborn and William G. Northrop, of Toledo, factory representatives of the Willys-Overland Co., attended the conference. Dealers attending were Harry Raby, George Raby, Loudonville; Brady Carl, Clarence Carl, Jeromeville; George Garst, Mohican; Fred Marshall, Ashland; D. M. Doty, Shelby; R. H. Richards, Bellville; W. E. Ocker, Shauck; W. B. Hart, Nova; Wilson Harris, George Harris, Lucas.

Curb Pump Ordinance Passes

DAVENPORT, IA., November 8—Despite the statement of the mayor that he would veto the ordinance, the board of aldermen has passed an ordinance permitting the installation of curb gasoline pumps with free air and free water. The board is strongly in favor of this permission but acted only after strong pressure had been brought to bear by dealers, garagemen and owners. The aldermen stated that the ordinance was in accord with public desire and that they were elected to carry out the wishes of the people.

The permission to install pumps is forbidden by the ordinance on these streets: Second, Perry to Scott; Third, Perry to Ripley; Fourth, Main to Harrison; Perry, Second to Fourth; Brady, Second to Fifth; Main, Second to Fourth; Harrison, Second to Fourth. But there are no garages anyway in these blocks.

If a \$10 fee and a \$2,000 bond are furnished pumps may be installed in non-restricted blocks, even if there be no garage there.

**Have you a proper accounting
system in your business? Whether
you have or not you should turn to
page 9. Read the announcement of
the Motor World Simplified Sys-
tem of Garage Accounting.**

Coast Used Car Market Under a Mammoth Tent

**Canvas Covered "Auction Block" Houses
500 Cars—Demonstration Track,
Fuel Station and Repairshop
Operated**

LOS ANGELES, November 4—What is said to be the largest tent in the world houses the latest novelty of the automobile industry established in Los Angeles. It is a used car show. The tent has a capacity of 5,000 persons and 500 cars.

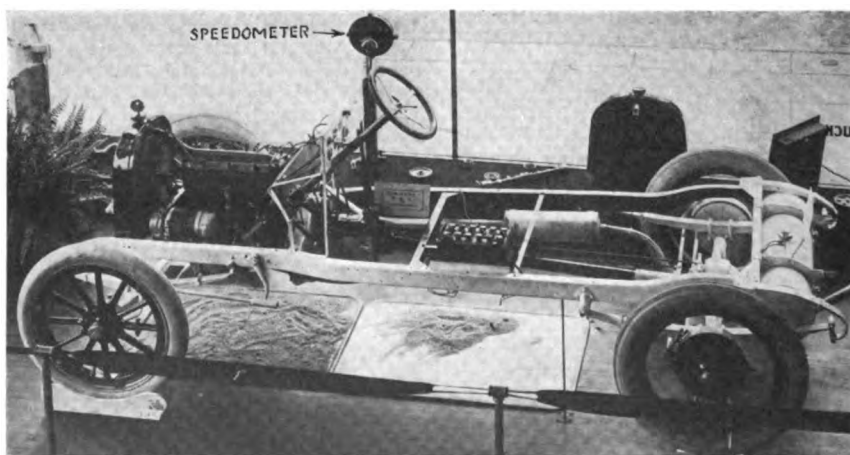
For many months there has been a great used car business carried on within a short distance of the heart of the city on vacant lots. Realizing that this business will suffer from the winter rain and that there is a great deal of business to be done after dark, the Union Auto Bus Co. has erected the great tent and will operate the used car show, auctions, sales and exchanges. Real estate is also exchanged for cars and cars for real estate.

A gasoline and oil station is operated on the grounds. In another side tent there is a restaurant. There is also a tent given over to a large accessory stock and another canvas top houses a garage and repairshop. The plant is a great clearing house for used cars.

Inside the main tent there is a large circular track for demonstrating purposes. There is also an elevated runway in the center of the track for testing brakes, gears and motors. This elevated bridge will also be used at the weekly auctions as the "block."

These auctions are to be held each Saturday. Cars are entered in the market place for \$1. This entitles the owner to display his car for one week with the price mark attached and enter it in the auction at the end of the week.

Breaking the Speed Limit in Show Window



Eaton & Campbell, Dodge dealers in Seattle, have this unusual window display. It is a Dodge chassis in continuous operation, and so that there may be no doubt of the speed the car would be running, if it were on the road, a great speedometer on a pedestal registers 22 miles an hour steadily. This also shows the total mileage

Hardware Dealers Make Moon Eyes at Supplies

National Hardware Association Names Committee to Investigate—To Have Accessories Branch to Work With Manufacturers

PHILADELPHIA, November 6—The hardware jobbers are paying heed to the accessory business. The National Hardware Association has named a committee to investigate the situation and make recommendations. The committee consists of C. H. Ireland, Odell Hardware Co., Greensboro, N. C.; W. B. Ayer, Belcher & Loomis Hardware Co., Providence, R. I.; S. Edward Rose, Barker, Rose & Clinton Co., Elmira, N. Y. The jobbers believe the accessory wholesaling and retailing situation will be greatly clarified in the immediate future as regards who is to handle these goods.

An accessory division is to be formed and will meet separately at the next convention. The opinion and action of the association is expressed in a resolution which says:

Whereas, the conditions which prevail in the distribution of automobile accessories have been so hazardous and unsatisfactory as to deter the hardware dealers, both retail and wholesale, from engaging extensively therein, and

Whereas, under proper regulation and standardization we believe they would be both safe and profitable as articles of commerce, and

Whereas, The National Hardware Association of the United States has as one of its cardinal principles the correction of the trade abuses and the proper encouragement of trade facilities,

Now, therefore, be it resolved, That the National Hardware Association of the United States, through its officers and executive committee, be instructed to create a special committee, to be known as the Automobile Accessories Committee, whose duty it shall be to take up with the manufacturers of accessories the matter of proper sales policies for the proper marketing of the same through the channel of the hardware dealers with a view of increasing the volume of the business, lessening the cost of distribution and reducing the price to the ultimate consumer, commensurate with safe and sound business principles.

It is further recommended that an enrollment be made of all members of the association engaged in jobbing accessories and that provision be made for a meeting of these at the next convention, to be known as the Accessories Branch.

October Shipments 15,972 Carloads

NEW YORK, November 5—At the regular monthly meeting of the National

Cleanliness Marks This Coast Salesroom



The sales and service quarters of the H. B. Rector Co., Marmon distributor in San Francisco, have been laid out to obtain a good appearance and plenty of light. H. B. Rector, head of the company, has been in the retail automobile business on the Pacific Coast for 12 years

Automobile Chamber of Commerce, held at the headquarters of the Chamber here yesterday, the Traffic Committee reported that October shipments of automobiles amounted to 15,972 carloads, as compared with 10,443 carloads shipped in October, 1914, or an increase of over 50 per cent. In September of this year shipments amounted to 17,190 carloads.

Studebaker Splits Territorial Supervision

DETROIT, November 5—The Studebaker Corp., owing to greatly increased business, has provided a western and an eastern division in the office of territorial manager. T. E. McMeans, formerly of the claims division, has been promoted to territorial manager for the western division, while W. C. Shanafelt retains the eastern district. To their duties has also been added that of looking after the service system.

Safety First After Jay-walker

NEW YORK, November 8—The Safety First Society would eliminate the jay-walker, that individual who crosses a street in the middle of a block. The society has recommended that an ordinance be passed limiting crossings to street intersections. The society also recommends that drive chains be enclosed and would regulate headlight and sidelight glare. Another recommendation is that when a gasoline car is stopped and unattended the motor must be stopped; electric car controls must be locked; steam car throttles must be locked, and emergency brakes must be set.

Delco Assists Dealers in Flood Washed Area

Hundreds of Starters Salt-water Soaked in Galveston Tidal Wave Repaired at Factory Without Cost—Ruined Outfits Renewed

Editor Motor World:

Enclosed copy of our letter of thanks to the Dayton Engineering Laboratories Co.

These people deserve special mention for the work of charity they did for all dealers and automobile owners here after the tidal wave and tropical storm passed over us, leaving hundreds of automobiles with electrical outfits practically ruined. Hundreds of these outfits were several hours under salt water and mud, buried. Delco outfits on hundreds of these cars were removed and shipped to the factory by dealers, and owners as well. Every one expected to pay for this work and for having new parts and coils, etc., installed, and add that to his already heavy loss from the hurricane and tidal wave damage.

These outfits were repaired with remarkable promptness, new coils, switches and parts installed, and absolutely no charge made for either work or new parts by the manufacturer.

The above certainly deserves special mention both on account of efficient service and the donation.

Yours truly,

Galveston Oakland Sales Co.,

E. A. Trube, Manager.

[The letter is not reproduced because of lack of space and because its contents are well expressed in but slightly different words in the foregoing letter.—Ed.] board of directors of the National Auto-

Have you a proper accounting system in your business? Whether you have or not you should turn to page 9. Read the announcement of the Motor World Simplified System of Garage Accounting.

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

W. A. Weldely has been appointed manager of the Los Angeles Pathfinder branch which serves the entire southern California and Arizona territory.

Harry W. Anderson, sales manager, Stutz Motor Car Co., Indianapolis, has resigned and severed connections with the company. He is succeeded by Wm. D. Myers, formerly sales manager, but who resigned about a year ago to form the Myers-Ebersole Motors Co., Kansas City. He will retain his interest in the latter company.

John W. Foster, manager of the Denver Auto Goods Co., Denver, and a member of that firm, has sold his interest and resigned as manager. He is first vice-president of the Automobile Trades Association of Colorado and a vice-president of the Retail Credit Men's Association of Denver and the Associated Garages of America.

L. H. Taylor, formerly salesman for the Denver branch of the B. F. Goodrich Co., is now western manager for the New Jersey Car Spring & Rubber Co., in charge of Colorado, New Mexico, Utah, Wyoming and Montana, with headquarters at 238 Temple Court building, Denver.

Ralph I. Lemon, recently manager of the Colorado Springs Auto Equipment Co., is now manager of the Denver Auto Goods Co., 1600 Broadway.

George A. Duggan is now manager of both the Estarado Garage, 1530 Clarkson street, and the Briscoe Auto Sales Co., 1646 Broadway, Denver.

B. E. Atwood has resigned as branch manager of the Cleveland Ford branch to become secretary and manager in charge of sales of the Coate Motor Co., 6016 Euclid avenue, Palge and Pullman distributor.

C. M. House, who was engineer of the Briggs-Detroit Co., Detroit, is now with the engineering staff of the Vacuum Oil Co. with headquarters in Detroit.

A. D. Waring has succeeded S. J. Wise as sales manager of the Palge-Detroit Co., of New York.

Fred J. Titus has been appointed retail sales manager of the R. M. Owen Co., New York, and E. S. Partridge has been made general sales manager.

Milton H. Pettit, formerly of Kenosha, Wis., has been elected vice-president in charge of plants and production of the J. I. Case T. M. Co., Racine, succeeding F. Lee Norton, who resigned as vice-president and general manager of the Case company several months ago. Elias J. Gittings, whose appointment as manager of the sales department was announced a few days ago, has also been elected a vice-president, in charge of sales. Richard T. Robinson, for many years secretary of the company, also resigned recently, and is succeeded by W. F. Sawyer, formerly manager of the sales department.

Joe A. Gallagher, for many years with the Autocar Co. and the Swinehart Tire & Rubber Co., has been appointed Chicago branch manager of the American Taximeter Co.

W. V. Logan, recently manager of the manufacturers department of the Goodyear

Tire & Rubber Co., is now associated with the McGraw Tire & Rubber Co. in the capacity of assistant general sales manager.

C. L. Ackerson, recently manager of the Winnipeg branch of the Maxwell Motor Co., Detroit, has been transferred to Windsor, Ontario, where he will make his headquarters and take over the duties of general sales manager for Canada. F. W. Wilkins, recently manager for Saskatchewan, has been transferred to Winnipeg and will have charge of sales in the western district.

E. L. Duffee, who has been manager of the New York branch of the Midgley Tire & Rubber Co., Lancaster, O., since the opening of this office some months ago, has been recalled to the home office. Everett S. Benson is now manager of the New York branch.

Ray E. Hollaway, formerly with the H. O. Harrison Co., San Francisco, has been appointed general manager of the Saxon Sales Co., with headquarters in San Francisco. The company will distribute Saxon cars in the northern California territory, taking over the Saxon agency from the Pearson-Saxon Co.

Sam Stephens, for three years Pierce salesman for Tom Botterill, Denver, has been made assistant to C. A. Biggs, recently appointed Mountain States district representative for Dodge Bros., with headquarters at 1608 Broadway, Denver.

Harry H. Hawke, district manager for the Anderson Electric Car Co., Detroit, has taken over the general management of the Detroit electric department of the Huffman Automobile Co., Omaha. These duties will be in addition to his present position.

Rumor of Stevens-Duryea Continuation Not Denied

**Stated a New Charter Will Be Applied
for and Work Started With New
Capital—New Plant Would
Be Needed**

SPRINGFIELD, November 6—There are persistent rumors that the Stevens-Duryea cars will be manufactured again. Negotiations are in progress for the sale of the Olmstead & Tuttle factory, situated off Springfield street, that has a taxed value of \$69,000. James L. Doherty, trustee of the estate, admitted that negotiations are under way for the sale of the property but he refused to say who the prospective buyer was. The company still has its plant for manufacturing parts to supply owners, but it is not large enough for manufacturing purposes. But the Olmstead & Tuttle factory would give it the needed facilities. According to the information gleaned a new charter will be applied for and work started on some cars again with new capital furnished by others not identified with the old company.

Dealer Factory Visitors of the Week

DETROITER MOTOR CAR CO.

A. L. Milliron Attica, O.
W. F. Els Attica, O.
H. W. Uidhardt Attica, O.
B. V. and O. V. McCammack,
Greencastle, Ind.
B. J. Korn Indianapolis

STUDEBAKER CORP.

Daniel Shinkel, Big Four.... Huntington, Ind.
Wm. A. Engles..... Terre Haute, Ind.
J. O. Piercy..... Tipton, Ind.
D. Frank Bricker..... Hicksville, O.
William Smalzreid, Central Garage,
North Manchester, Ind.
John J. Kenny, Davis M. Car Co.... Cleveland
C. M. Hansen, Duplex M. C. Co.... Chicago
L. R. Redway..... Cortland, N. Y.
I. B. Wike..... Huntington, Ind.
A. Knight..... Zanesville, Ind.
A. K. McLuney..... Utica, N. Y.
E. Kirk..... Findlay, O.
Shirley Carroll..... Hartford City, Ind.
D. S. Cade..... Veedersburg, Ind.

PACKARD MOTOR CAR CO.

H. S. Norton, Packard Cleveland M. Co.,
Cleveland
R. E. Campbell, Packard Cleveland M. Co.,
Cleveland
C. A. Forster, Packard Cleveland M. Co.,
Cleveland
W. L. Cowan, Ontario M. C. Co.... Toronto
M. J. Budlong, Gaston, Williams & Wig-
more New York
L. J. Eastman, Packard M. C. Co. of Phila.
W. J. Evans, Packard M. C. Co. of N. Y.
E. C. Anthony, Earle C. Anthony, Inc.,
Los Angeles
Alvan T. Fuller, Packard M. C. Co. of Boston
A. E. Jones, F. E. Avery & Son.... Columbus
A. W. Stults, Randall-Stults M. C. Co.,
Ft. Wayne, Ind.
H. O. Adams, Randal-Adams A. Co.... Dallas
Ernest A. Brandes Hastings, Neb.
F. A. Jones, Packard M. C. Co. of Chicago
Hartley Howard, Packard M. C. Co. of Pgh.
F. G. Pennal, Comet Motor Co., Ltd.,
Montreal
I. L. Berk, Packard M. C. Co. of Pittsburgh
A. E. Gluck, Packard M. C. Co. of New York
Jos. Delaney, Packard M. C. Co. of New York
E. E. Bodge, The von-Hamm-Young Co.,
Honolulu

R. E. Campbell, Packard Cleveland M. Co.,
Cleveland, O.
R. W. Whipple..... Binghamton, N. Y.
J. W. Tarbill, Citizens Motor Car Co.,
Cincinnati

FRANKLIN AUTOMOBILE CO.

Nicholas Hughes, Hughes Garage Co.,
Paterson, N. J.
E. A. Brodie..... Burlington, Vt.
C. G. Heck, Franklin M. C. Co.... Albany, N. Y.
O. D. DeWitt, Eureka M. C. Co.,
Scranton, Pa.
E. L. Benedict, Franklin M. C. Co.,
Utica, N. Y.
A. G. Perretz..... Brooklyn, N. Y.
A. M. Jones, Beekman & Jones,
Norwich, N. Y.
F. L. Beekman, Beekman & Jones,
Norwich, N. Y.
Cowles Tolman..... New Haven, Conn.
S. F. Carpenter..... Carbondale, Pa.
Geo. Leonard..... Auburn, N. Y.

PAIGE-DETROIT MOTOR CAR CO.

C. L. Sturtevant, Palge-Toledo M. C. Co.,
Toledo
Ell. Short..... Elmira, O.
E. G. Henry, Sterling M. C. Co.... Indianapolis
R. D. Rockstead..... Milwaukee
E. G. Hayes..... Flint
D. M. Jarvis..... Burlington, Vt.
A. G. Johnson..... Greenville, Mich.
J. C. Neikirk..... Republic, O.
F. W. Stolte, Schiefer Auto Co., Inc.,
Ft. Wayne
Fred C. Wood..... Cincinnati
E. A. Jeffers..... Kankakee, Ill.
R. W. Carr..... Charlotte, Mich.
Chas. F. Sattler..... Charlotte, Mich.
C. J. Clapp, Palge-Toledo M. C. Co.... Toledo
E. Casseroll..... Grand Rapids
H. A. Porter..... Grand Rapids
Wm. P. Knipper..... Rochester
John Higgins..... Vassar, Mich.
R. D. Mathews, Knoxville A. & S. Co.,
Knoxville, Ia.
C. E. Hagenbuck..... Constantine, Mich.
Chester G. Schieffer, Schieffer Auto Co.,
Inc. Ft. Wayne
Frank O. Rayner..... Piqua, O.
M. C. Lintz..... Flint
E. G. Hayes..... Flint

CUMMINS-MONITOR SIX \$895— WILL CONTINUE FOUR

COLUMBUS, O., November 6—For the 1916 season the Cummins-Monitor Co. will add a six-cylinder car, to sell at \$895, and continue the four-cylinder touring car and roadster models previously made, selling at \$795. The motor used in the six is L-head, 3 x 5. The rear springs are three-quarter elliptic, underslung, with a swinging saddle. Tires are 33 x 4, with non-skid in the rear. The wheels have large drums with internal and external brakes, the latter being leather-covered to protect the linings from dirt and grit.

The body is finished in Brewster green with dark blue as an option, with the rest of the car in black. Vacuum fuel feed is employed, the gasoline tank being in the rear.

Very slight changes are to be noted in the four-cylinder models. The 4-30 has a 108-in. wheelbase. Fuel is carried in the rear of the roadster and under the cowl of the touring car. The motor used in the four is a Golden, Belknap & Swartz, 3¼ x 4¼. Cylinders are block-cast, with removable head. Lubrication is by force feed to the main bearings, but the splash system is used for the other parts. Cooling is obtained by thermo-syphon.

The clutch is a multiple disk. The gearset has three speeds forward and one reverse and is a unit with the motor.

The axle is a floating type. Hyatt roller bearings are used in the axle and the driving shafts. Splittorf ignition is used and a 12-volt Disco electric generator and motor is employed for cranking and lighting. Tires are 32 x 3½, non-skid in the rear, with five demountable rims.

JEFFERY SEDAN AT \$1,165

KENOSHA, WIS., November 6—The Thos. B. Jeffery Co. has placed on the market a sedan with detachable top on its four-cylinder chassis to sell for \$1,165.

More Accessories from Detroit

DETROIT, Oct. 30—Automobile accessories will be made by the Ainsworth Mfg. Co., which has been incorporated and which has a capital stock of \$100,000. The plant will locate temporarily in the former building occupied by the Ideal Mfg. Co., Franklin and Dubois streets. Clarence H. Booth, former general manager of the Studebaker Corp., is president of the company, and C. H. Ainsworth, secretary-treasurer. Mr. Ainsworth, the principal organizer, was formerly with the Rover Motor Car Co., Coventry, England, and more recently with the Rands Mfg. Co., Detroit.

Minneapolis Branch for Ahlberg

CHICAGO, Nov. 1—The Ahlberg Bearing Co. has opened a branch office and exchange agency at 926 Marquette avenue Minneapolis. L. J. Bohan is branch manager.

Canadian Briscoes Soon on Market

BROCKVILLE, ONT., November 6—It has been officially announced that within two or three weeks the Canadian Briscoe Co., a new subsidiary of Carriage Factories, will be turning out four- and eight-cylinder medium-priced cars and that before the end of the year the company figures on placing on the market at least a thousand of these cars. The company will assemble the parts at

Factory News of the Week

Brockville, where the plant of the old Acme Automobile Co. has been taken over, and Carriage Factories will participate in portions of the manufacturing end.

CHASSIS FROM DETROIT

DETROIT, November 2—The Detroit Chassis Co. has been organized, temporarily capitalized at \$10,000, and has leased the plant formerly occupied by the Vitralite Co., West Grand Boulevard and Hubbard avenue, where manufacturing of a standard chassis has been started. It is the object of the new company to cater especially to carriage and buggy makers and offer them a chassis at a price which, when the car is completely equipped, will enable them to compete successfully with the automobile manufacturer.

Instead of putting out a chassis with a specified line of parts or components, such as carbureter, ignition system, starting and lighting system, this part of the equipment will be entirely optional and the price will be made according to the equipment required. The chassis itself will be only made in one size, 110-in. wheelbase and standard tread. The motor will be a four-cylinder block, 3¼ x 5. The wheels will be of the artillery type, with 32 x 3½ tires. The weight of the chassis will be about 1,100 lbs.

MOLINE CONTINUING BUGGIES

MOLINE, ILL., November 6—Although the Moline Plow Co. is preparing to place on the market a pleasure car, it is not the intent of the company to discontinue the production of buggies. The company will continue to make a full line of buggies in Freeport at the plant of the Henney Buggy Co.

GRANT MAKES ADDITIONS

FINDLAY, O., November 4—Additions to the plant of the Grant Motor Co. will provide about 25,000 sq. ft. of additional floor space when completed. Production will be increased as fast as possible. At the present time the output averages 30 cars a day.

Moreland Truck Prices Reduced

LOS ANGELES, November 6—The Moreland Motor Truck Co. has announced a sweeping reduction in prices for the coming year. The line includes 1-ton, 1½-ton, 2½-ton and 4-ton trucks, the old prices of which were \$1,850, \$2,200, \$2,800 and \$3,650, respectively. The new prices are \$1,150, \$1,850, \$2,400 and \$3,200, respectively.

Have you a proper accounting system in your business? Whether you have or not you should turn to page 9. Read the announcement of the Motor World Simplified System of Garage Accounting.

MONARCH BUILDS ONLY EIGHT FOR 1916 MARKET

DETROIT, November 6—The Monarch Motor Car Co. will produce only one stock model for 1916, an eight-cylinder, seven-passenger touring car with 125-in. wheelbase and 33 x 4½ tires. The price remains the same—\$1,500. Mechanically the car is the same model as previously brought out, but a number of refinements have been made in the body and finish. The motor is a Herschell-Spillman of the latest type, 3 x 5, with Atwater Kent ignition. The gearset is made by the Detroit Gear & Machine co. and is in unit with the motor. Drive is by tubular shaft through a double universal of standard design. Axles are of Columbia make, the rear being floating, with spiral bevel gears. Gemmer steering gear is used. A more-room steering wheel is used, facilitating getting in and out of the driver's seat. Rear springs are three-quarter elliptic. Starting and lighting is Ward Leonard, with flywheel application through a Bendix driving pinion. Fuel feed is by Stewart vacuum system.

NEW CHANDLER REGIME

NEW YORK, November 5—A new regime in the Chandler Motor Car Co., Cleveland, has been started by an increase in the stock of the company from \$425,000 to \$10,000,000, this increase being all common stock. This additional common stock is not all being sold, \$3,000,000 being held for future sales. By this new financing scheme the capacity of the Chandler factory, it is expected, will be increased to 20,000 cars to be built in the next twelve months. There were 9,000 cars built during the last year. Under the new financing the control and management of the company will remain with the old stockholders, and the majority of the board will be made up of the old Chandler organization, including F. C. Chandler, president; C. A. Emise, vice-president; W. S. Mead, vice-president, and Samuel Rogers, treasurer. The proceeds of the sale of new common stock will be used for increasing the factory capacity.

STERLING ROADSTER \$550

NEW YORK, November 6—The Sterling Automobile Mfg. Co., 1790 Broadway, is preparing shortly to place on the market a roadster which will sell for \$550, including two-unit electric lighting and starting apparatus. It is equipped with a four-cylinder 2½ x 4 Sterling motor, three-speed gearset, cone clutch and three-quarter floating axle. The wheelbase is 102 in. and the tires are 30 x 3½.

OLDS SALES INCREASE 133%

LANSING, MICH., November 5—Sales of the Olds Motor Works during August, September and October are reported to have been 133 per cent larger than during the same period last year. Production is now being increased as much as possible and the manufacturing floor space has been increased for that purpose.

U. S. Changes Truck Prices

CINCINNATI, Nov. 9—The United States Motor Truck Co. has adopted a new schedule of prices which will be in effect during the coming season as follows: Model E, \$1,900; Model D, \$2,400; Model H, \$2,200; Model J, \$2,800; Model K, \$3,600.

PLAN TO SELL OVERLANDS ON TIME

TOLEDO, Nov. 8—Dealers selling Overland and Willys-Knight cars are now offered facilities for financing time payments on cars by a new securities company in this city, known as the Guaranty Securities Co. A guaranty plan has been worked out whereby the burden of carrying installment paper is removed from the dealers' and distributors' shoulders and carried by the Guaranty Securities Co. Three distinct kinds of discount facilities are afforded the dealers by the new plan, namely, the discount of installment notes on retail sales, the discount of farmers' notes on retail sales, and the discount of paper growing out of sales at wholesale by distributors to dealers, with particular reference to the winter stocking season.

In the working out of the plan, the Willys-Overland Co. has advised and suggested a course which would benefit Overland dealers, but the Willys-Overland Co. is not in any way connected with the Guaranty Securities Co.

Studebaker Dealers in a Tour

DETROIT, Nov. 8—Today 115 Studebaker cars started in different parts of the country on a 4-days reliability tour promoted by the Studebaker Corp., the contestants being principally Studebaker dealers and distributors. A total distance of 1,000 miles is to be run in 4 days or 48 hours of actual running time. The tour has been arranged to get a gasoline and oil consumption record under ordinary touring conditions throughout the country.

Mosler Reduces Plug Prices

NEW YORK, Nov. 8—The price to the dealer of the Vesuvius spark plug, made by A. R. Mosler & Co., has been reduced from 75 to 55 cents; this is a 20-cent increase in profit for the plug will still retail at \$1. At the same time the price to the jobber has been reduced from 60 to 40 cents.

Haverhill Girl Wins Contest

DETROIT, Nov. 8—By driving from Buffalo to Haverhill, Mass., a distance of 567 miles, without taking on extra gasoline or oil on the road, and thus averaging 33.37 miles to the gallon, Miss Eva Cunningham was declared the winner in the Maxwell Dealers Efficiency Run, which started from Buffalo September 28 and continued for several days, or until the contestant reached his home town. Miss Cunningham used 17 gal. of gasoline.

The test or run was part of the convention of the Maxwell dealers of zone No. 1, which includes the New England states, New Jersey, New York, Maryland and eastern Pennsylvania, the dealers taking delivery of new Maxwell cars at the plant in Detroit and starting the

home drive from Buffalo. About 100 started, but owing to the bad roads in many parts of the country through which some had to drive, they either gave up the contest or did not care to be considered as contestants. The average mileage of those who finished was 451.9 and the average mileage per gallon 26.65.

Peerless Truck & Motor Corp.

NEW YORK, Nov. 9—A new company styled Peerless Truck & Motor Corp., and having a capital stock of \$10,000,000, was formed last week to acquire the Peerless Motor Car Co., Cleveland, and the General Vehicle Co., Long Island City. Although details of the directorate have not yet been completed, it is known that the board will include the following: D. R. Tinker, Jr., vice-president, Chase National Bank; Charles V. Rich, vice-president, National City Bank; P. J. McIntosh, 26 Broadway; S. Terry and B. G. Tremaine, both of the General Electric Lamp Works, Cleveland; P. D. Wagoner, president, General Vehicle Co.; and L. H. Kittredge, president, Peerless Motor Car Co. It is likely that Harrison Williams, who has been instrumental in the consolidation plan, also will be a director. It is understood that the manufacture of commercial vehicles will be continued and that the production of passenger cars at the Peerless factory is assured as an eight-cylinder car will be brought out in the near future.



*Indicates sanction by A. A. A.

Nov. 20.....	Phoenix, Ariz., 150-mile track meet.
Nov. 29-Dec. 4.....	Omaha, Neb., Track race-meet.
Dec. 9.....	Des Moines, Ia., Convention, Iowa Retail Automobile Dealers Assn.
Jan. 7, 8, 10, 11.....	New York, Meeting National Assn. of Automobile Accessory Jobbers.
Jan. 25.....	Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
Jan. 26-27.....	Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
Feb. 21-26.....	Countrywide Electric Prosperity Week.
May 13.....	New York City, Sheephead Bay Speedway race-meet.
May 30.....	Indianapolis, Ind., Track race-meet.
June 17.....	Chicago, Ill., Speedway race-meet.
June 28.....	Des Moines, Ia., Speedway race-meet.
July 4.....	Minneapolis, Minn., Speedway race-meet.
July 4.....	Sioux City, Ia., Speedway race-meet.
July 15.....	Omaha, Neb., Track race-meet.
Aug. 5.....	Tacoma, Wash., Track race-meet.

THE SHOW CIRCUIT

Nov. 12-20.....	Providence, R. I., Show, Automobile Dealers Assn., State Armory.
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Nov. 17-20.....	Pasadena, Cal., Show, Hotel Maryland.
Nov. 22-27.....	Binghamton, N. Y., Annual Show, Binghamton Automobile Dealers Assn., State Armory.
Dec. 6-11.....	Springfield, Mass., Show, Auditorium. H. J. Stacy, manager.
Dec. 31-Jan. 8.....	New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
Jan. 3-9.....	New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
Jan. 8-15.....	Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn., Convention Hall.
Jan. 8-15.....	Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
Jan. 17-24.....	Wilmington, Del., Second Annual Show, Wilmington Automobile Trade Assn., Hotel Du Pont. J. H. Nixon, chairman.
Jan. 17-22.....	Rochester, N. Y., Show, Exposition Park. C. A. Simmons, manager.
Jan. 18-22.....	Lancaster, Pa., Show, Cone-stoga Park Pavilion.
Jan. 18-22.....	Baltimore, Md., Show, Baltimore Automobile Dealers Assn., Fifth Regiment Armory.
Jan. 22-29.....	Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.
Jan. 23-30.....	Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.
Jan. 24-29.....	Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
Feb. 19-26.....	Newark, N. J., Show, First Regiment Armory. C. L. Fitzgerald, manager.
Feb. 21-26.....	South Bethlehem, Pa., Show, Coliseum. James L. Elliot, manager.
Feb. 21-26.....	Louisville, Ky., Ninth Annual Show, Louisville Automobile Dealers Assn., First Regiment Armory.

Motor Car Securities Quotations

No quotations for the corresponding date in 1914 are available because of the closing of the Stock Exchange due to the foreign war situation.

		November 6, 1915	
		Bid	Asked
Ajax-Grieb Rubber Co., com.....	300	..	..
Ajax-Grieb Rubber Co., pfd.....	101	..	..
Aluminum Castings, pfd.....	102	..	..
Chalmers Motor Co., com.....	156	160	..
Chalmers Motor Co., pfd.....	102	104	..
Chevrolet Motor Co.....	123	126	..
General Motors Co., com.....	369	371	..
General Motors Co., pfd.....	113	114½	..
B. F. Goodrich Co., com.....	71	73	..
B. F. Goodrich Co., pfd.....	111	113	..
Goodyear Tire & R. Co., com.....	328	333	..
Goodyear Tire & R. Co., pfd.....	110	112	..
International Motor Co., com.....	35	37	..
International Motor Co., pfd.....	64	67	..
Kelly-Sprgfid Tire Co., com.....	76	77	..
Kelly-Sprgfid Tire Co., 1st pfd.....	94	97	..
Kelly-Sprgfid Tire Co., 2nd pfd.....	76	77	..
Maxwell Motor Co., com.....	67½	68½	..
Maxwell Motor Co., 1st pfd.....	97	97½	..
Maxwell Motor Co., 2nd pfd.....	57	59	..
Miller Rubber Co., com.....	249	252	..
Miller Rubber Co., pfd.....	109	110½	..
Packard Motor Car Co., com.....	130	135	..
Packard Motor Car Co., pfd.....	100	102	..
Paige-Detroit Motor Car Co.....	465	..	..
Peerless Motor Car Co., com.....	147½	147½	..
Peerless Motor Car Co., pfd.....	92	96	..
Portage Rubber Co., com.....	80	85	..
Portage Rubber Co., pfd.....	98	100	..
Regal Motor Car Co., pfd.....	15	20	..
*Reo Motor Truck Co.....	21	22	..
*Reo Motor Car Co.....	40	..	..
Stewart-Warner Speed. Corp., c. 75	76	..	..
Stewart-Warner Speed. Corp., p. 106	162	163	..
Studebaker Corp., com.....	113	115	..
Studebaker Corp., pfd.....	90	92	..
Swinehart Tire & Rubber Co.....	55	56	..
U. S. Rubber Co., com.....	106½	107½	..
U. S. Rubber Co., 1st pfd.....	110	..	..
White Co., pfd.....	238	242	..
Willys-Overland Co., com.....	109	111	..
Willys-Overland Co., pfd.....	..	..	..

*Par value \$10; all others \$100 par value.

MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 7

New York, November 17, 1915

Ten cents a copy
Two dollars a year

Tie Your Business To Our 2,000,000 Ads A Week

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A year 'round average of 2,000,000 Champion advertisements each week—think of it.

We spend more money for advertising than all other spark plug makers combined.



"TOLEDO MADE FOR THE WHOLE WORLD'S TRADE"

Dependable Spark Plugs

This is only in keeping with the greater quality and greater sales of Champion plugs—the only plugs that always give you the full profit. You never have to mark down the price to get them off your shelves.

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MULTIBESTOS

insures positive braking in all circumstances. It halts your car instantly in emergencies. At other times it brings it to a smooth, gliding stop.

Multibestos prevents that grinding wear a less efficient lining imposes on the braking parts. It is proven superior in durability, braking ability and heat resistance — *by test*. That is why supply men, repair men and garage owners *everywhere* recommend it to the car owner who demands the best.

STANDARD WOVEN FABRIC COMPANY
Framingham, Mass.

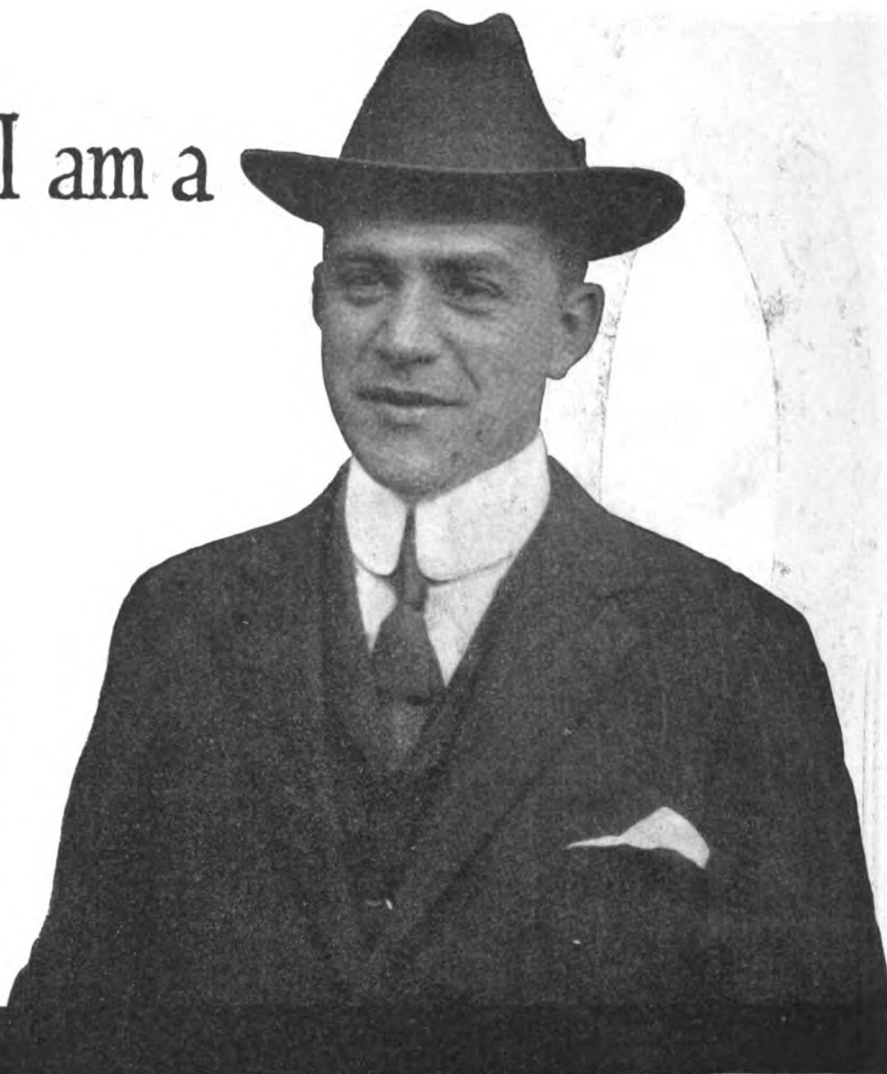
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MUDAPHIA

The reason I am a Studebaker Dealer



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manufacturer is absolutely VITAL to a dealer's success.

"And the reason that I am a Studebaker Dealer is simply that I know Studebaker has the facilities to keep its products top-notch, to give the GREATEST dollar-for-dollar value every year as it has done this year with the FORTY Horse Power FOUR at \$885 and the FIFTY Horse Power SIX at \$1050—and to back me up and make it possible in the face of the keenest competition to BUILD a successful business."

Lafayette Markle
L. Markle Co., Chicago, Ill.

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Touring Car, 7-passenger . . .	\$ 885
Roadster, 3-passenger . . .	850
Landau-Roadster, 3-pass. . .	1185
Panel Delivery Car . . .	875
Open Express Car . . .	850
Station Wagon . . .	875

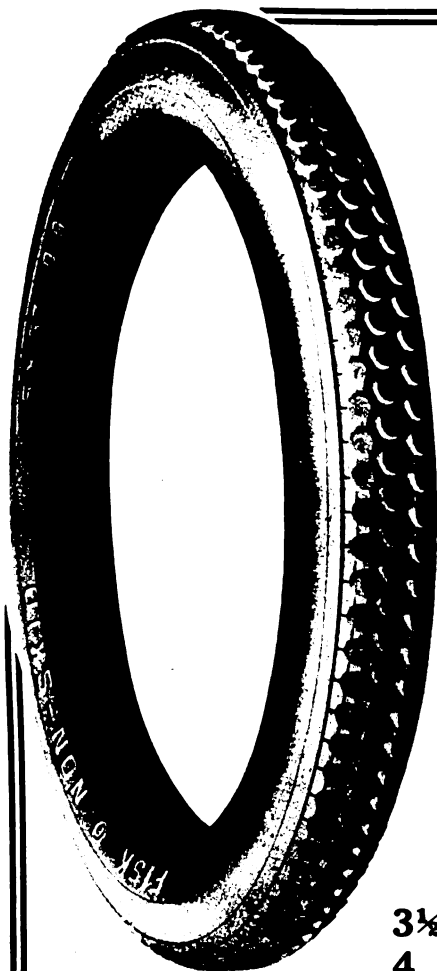
STUDEBAKER

South Bend, Ind. Detroit, Mich. Walkerville, Ont.

Address all correspondence to Detroit

Six Cylinder Models

Touring Car, 7-passenger . . .	\$1050
Roadster, 3-passenger . . .	1000
Landau-Roadster, 3-pass. . .	1350
Coupe, 4-passenger . . .	1550
Limousine, 7-passenger . . .	2250
F. O. B. Detroit	



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4 x 33 - 20.00	4½ x 36 - 28.70
4 x 34 - 20.35	5 x 37 - 33.90

*Fisk Plain Tread Prices are 5%
lower than Non-Skids*

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Power loss through friction is preventable



Friction means depreciation in any mechanism where it is present.

In bearings it means deterioration of the bearing parts and is productive of injury to the parts the bearings support.

The selection of bearings, therefore, is a matter of high importance and first and foremost a question of *Quality*.

NEW DEPARTURE BALL BEARINGS

American Made for American Trade

Measure up to every requirement in the fight against friction because by reason of *Quality*, they have prevented friction throughout the long life of many mechanisms.



Send for our
Ball Bearing
Manual.

THE NEW DEPARTURE MANUFACTURING CO.

Bristol, Conn., U. S. A.

Conrad Patent Licensee

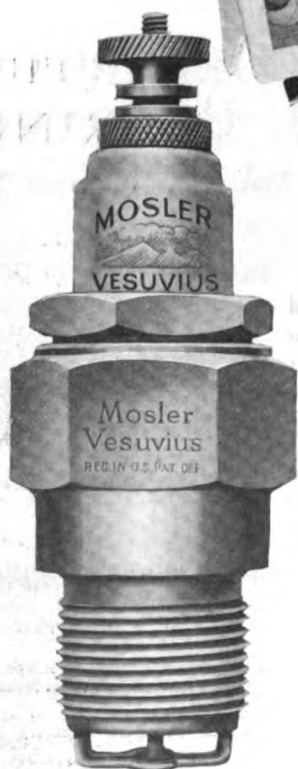
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Sole British Agents: Brown Bros., Ltd. London and Manchester

For Continent of Europe:

Jacob Holst, Copenhagen, Freeport, Denmark

WESTERN BRANCH: 1016-17 FORD BLDG., DETROIT, MICH.

PUBLICITY



MOSLER VESUVIUS PLUG

Backing up the quality of the MOSLER VESUVIUS PLUG is the power of a well-planned advertising campaign designed to add to the prestige of this plug—to stimulate the natural demand for it and to help make your sale of it steadier and more profitable.

Supplementing this publicity campaign we provide a full line of all kind of display matter and literature.

Write for our new trade price schedule—samples of sales helps and instructions as to how to make all our advertising help you.

A. R. MOSLER & COMPANY
NEW YORK, N. Y.

MOTOR WORLD

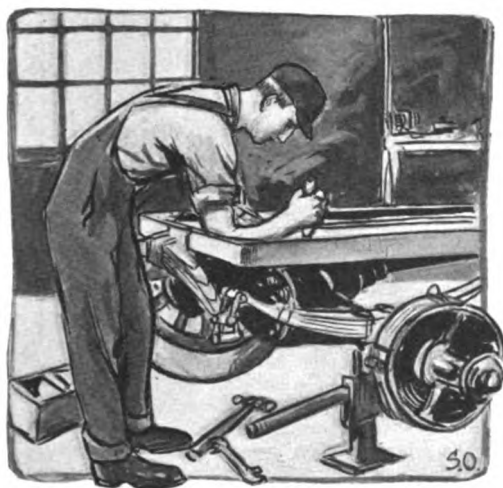
JOBBERs, DEALERs, AND GARAGEMEN

Vol. XLV

New York, U. S. A., Wednesday, November 17, 1915

No. 7

Where Will YOU Be When You Are Ten Years Older



YOUR future is in your own hands. It's up to you. Success or failure will be of your own making.

If success does not come to you, you may believe you are "unfortunate"; you may say it is due to "conditions"; you may be disposed to blame others for your failure to achieve. But the fault will be **YOU**. You are the builder of your future.

When you are **TEN YEARS OLDER** will you be wearing greasy overalls and wielding a monkey-wrench? Or, will you be a money-making business man, sitting at a desk and directing a profitable business?

It is for you to choose—and to choose **NOW**. **TODAY** you should lay out the route of your future.

If you are a dealer or garageman your future success depends upon the growth of your business. You want to—you must—make that business expand and prosper.

Do you know that your business can never expand and prosper unless it is framed upon a proper business system, a process of accounting that tells you where you lose and where you gain? You cannot travel the road to business success unless you

have good accounting methods to guide you.

Many dealers and garagemen have not gone into business accounting because existing methods are complicated. There are too many books; the forms are too complex. To handle them the dealer and garageman would have to be an accountant—which he is not. He is just an ordinary man to whom accountancy is vague.

This man needs a system that is easily understood, that he can take care of himself. Many demands for such a system were made of Motor World, and an effort was made to find something that could be recommended. But nothing could be found, and it was necessary to devise an entirely new system, which will be described in a series of about six weekly installments, **BEGINNING NEXT WEEK, NOVEMBER 24**.

The whole system is so simple that it is all in one book, yet it is complete.

The series of articles to begin next week will explain the operation of the forms in detail. Each step will be made plain. After the series has

been concluded the garageman or dealer will have no difficulty installing the system in his business. And if he should want to ask any questions Motor World will at all times stand ready to consult and advise.

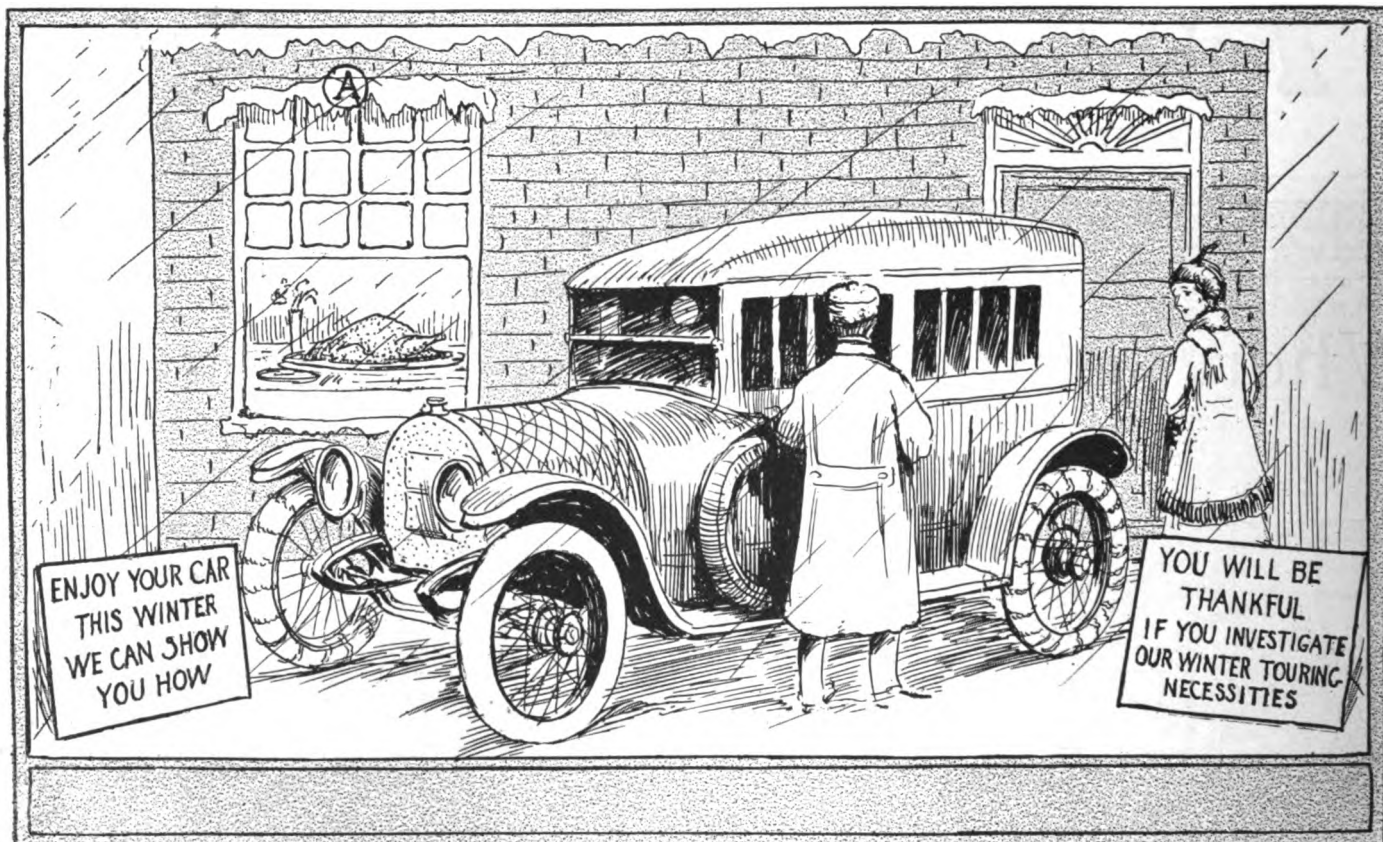
You should begin with the first installment, go through to the finish, and by all means file every copy. If your business is drifting in a systemless manner you should get this accounting instruction. If you have spent more time in the shop than you have in the management of your business it is just possible that you are **NOT** applying your time to your greatest advantage.

If your repair department is losing you should know it and **CHECK THAT LEAK**. If your accessory department is thriving you should watch its growth and make it grow faster. **BUT YOU CAN'T DO THESE THINGS WITHOUT ACCOUNTING METHODS.**

Even if you eventually install some other system you should begin next week and read of Motor World's Simplified System of Accounting. It may help you answer:

Where Will YOU Be When You Are Ten Years Older?

Boost Winter Business with Thanksgiving Window Display



Let Thanksgiving work for you. There is no reason why that and every other holiday should not be made to help your business. Window displays that savor of a holiday are highly effective. This one is a Thanksgiving window. The car has its curtains down and is buttoned up tight; it has a hood cover and other winter accessories and looks comfortable. The man wears winter togs, as does the woman. They are just going in to eat turkey at a friend's home. The background

may be made of cheap cloth and paint or crayon. The door may be painted on but the window will be best if it is a real window, the smaller the panes the better. It can be held on two upright 2 x 4's. A light should be behind the scenery at A and should shine down brightly upon the scene inside the window.

The scene-through-the-window here is a big papier mache turkey, some lettuce, etc., on a table. If it is not possible to gather

these materials some other Thanksgiving interior may be arranged, but it should be made as inviting and homelike as possible; in fact, this scene determines the success of the window. The outside wall of the house should be dark colored rather than light and the scene through the window should by contrast be very bright. Beyond the turkey another drop may be placed to cut off further view of the interior of the store. The sleet may be put on the window with soap.

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It is presented for the garageman and dealer. It is one of the most important works that has ever been done by Motor World.

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His Runway Window Brought the Greater Profits

And All It Cost Turner Was \$14.75

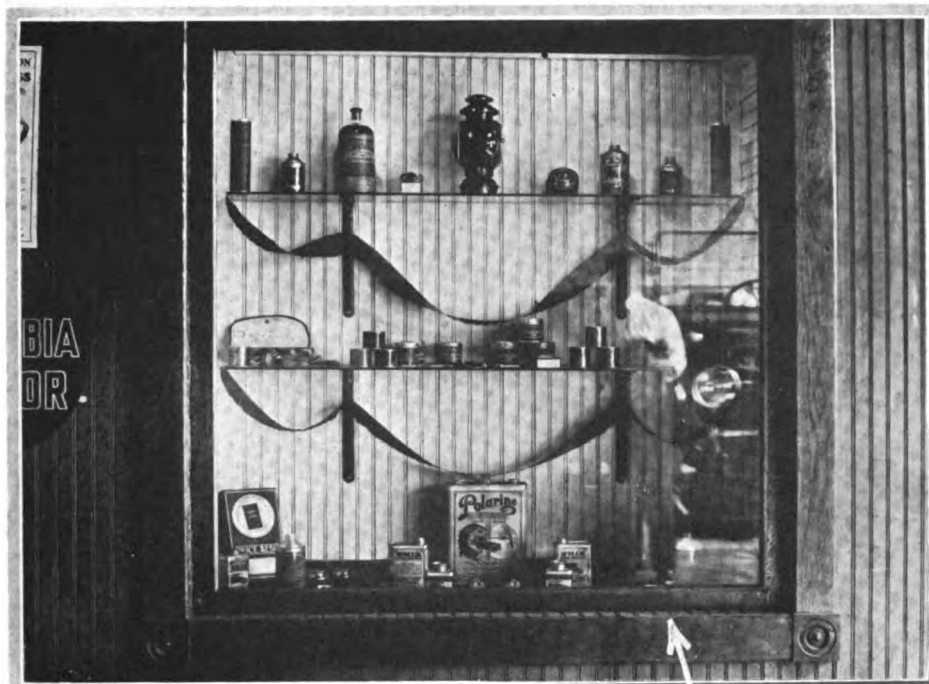


CHARLES L. TURNER

Of Peoria, Ill., owner of the Turner Garage and treasurer of the Garage Owners' Association of Illinois

← This picture shows the runway window. It is well lighted and the display is open and uncrowded

↙ This shows the location of the window. It is beside the runway, a few feet inside the doors, where it must be seen by all who enter. It can even be seen from the street



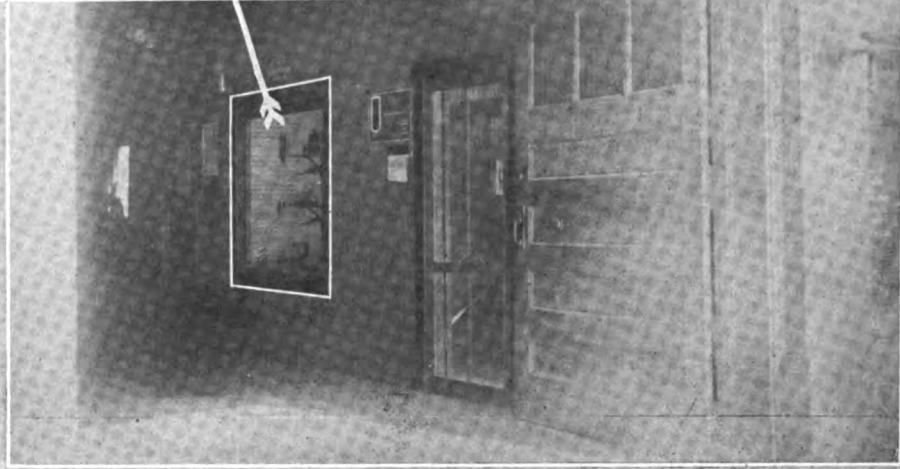
AFTER 14 YEARS in the garage business Charles L. Turner, of Peoria, Ill., has made his customers understand that he sells accessories and supplies. The result is that he is selling more accessories and supplies than ever before and is realizing those Greater Profits which every garageman should get.

Turner did it by spending only \$14.75. He built a runway display window beside the entrance to his garage, where it cannot fail to be seen by every customer who enters, and the little window did what show cases in the office and in the front window had failed to do. The show cases were neat, clean and attractive, but they lacked that hit-you-in-the-face effect that the runway window possesses.

This is Turner's own story of the window: "We have been in the garage business for a good many years—fourteen, to be exact—and it seemed as if we could never get our customers to understand that we carried accessories and supplies.

"Of course, we have been located in our present quarters only three years, but, notwithstanding that we have a show case in the office and also one out in the front window, people did not seem to pay much attention to our stock until we put in the runway window, the idea, of course, having been copied from Motor World.

"This window is about 5 ft. square



and about 2 ft. deep and is placed right in the side of our stock room. It has plate glass in front and two heavy glass shelves and is lighted up at night by two concealed tungsten lamps at the top; it is so bright that it cannot help but be attractive even to people in the street. The window and labor cost \$14.75.

"We do not aim to crowd this window full of all kinds of accessories, but keep only a few of the kind that our customers might want, and we change the display every week. It certainly does attract attention and **HAS INCREASED OUR BUSINESS.** We know this, because people will stop and look at the window and then come into the office and ask about something in the window:

in that way they see something in the show cases in the office that attracts their attention.

"The window is there to stay. We have no intention of taking it out. It is a good silent salesman, and, by keeping it neat and tidy and filled with the very latest accessories, **IT IS A MONEY GETTER.**"

Turner also makes a statement as to buying that is worthy of consideration: "During the last few years we have handled only such accessories as we know to be thoroughly reliable and we have bought them through firms which we know to be reliable, and we have found this helps build up our business, because shoddy goods are not going to stand up

and the man who handles them will sooner or later be found out."

What he says about buying is one of the secrets of success in the selling of accessories and supplies. Display will sell even poor goods, but poor goods will not build future business.

In addition to the runway window, which was illustrated in Motor World May 12 in the story of the Niagara Garage, New York city, Turner states that he has adopted other ideas which have brought his business. The most valuable is the use of mailing inserts, those little slips of paper which are put in with the letters that go out.

Inserts With Statements

The slips, calling attention to goods and service, are put in principally with the Turner Garage's statements. They are little notes written on paper of different colors to call attention to something new that the garage has to sell or make some suggestion that is seasonable.

"Then, again," adds Turner, "we send out circular letters, calling the attention of our customers to different things; one time it may be vulcanizers, another time tires, another time batteries, etc., and we have found that they have paid. THE GARAGE BUSINESS IS SOMETHING THAT WILL NOT RUN ITSELF, AND AT THE PRESENT TIME IT REQUIRES A GREATER STUDY THAN AT ANY PREVIOUS TIME, AND ALL OF THE DIFFERENT DEPARTMENTS REQUIRE THE CLOSEST WATCHING."

A letter which is illustrated on page 9 may be used to advantage now and during the coming weeks by every garageman in states where the snow falls. It is a big business getter. Coupled with it are some of those colored-paper notes sent with statements. Four of them follow:

A March 1 Shot

This one was sent out March 1, 1915, as the touring season was about to open:

"We have a most complete and successful oxygen decarbonizer installation and two skilled operators for same.

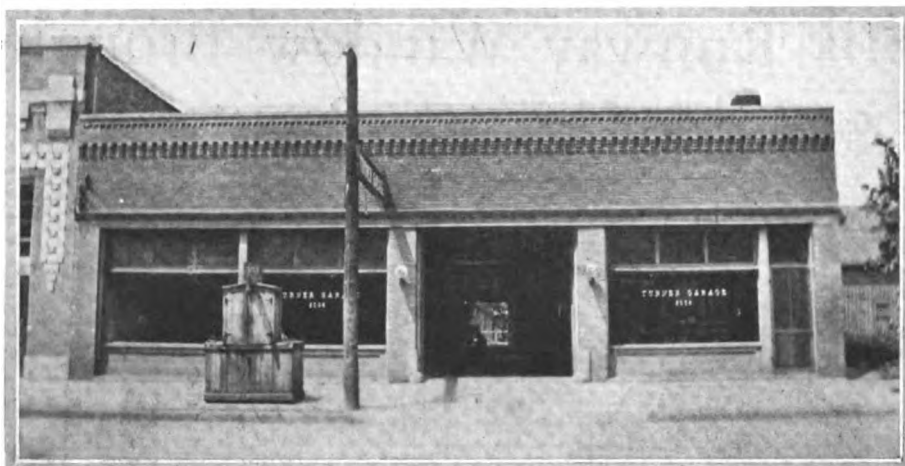
"We can thoroughly decarbonize a four- or six-cylinder motor in from one to two hours, and we guarantee that the carbon will all be removed.

"The charge for this work varies some, depending on the size of the cylinders, but will not exceed 60 cents per cylinder.

"We have cured many motors of knocking by using the oxygen decarbonizer when the owners thought that the motor needed overhauling."

This note went out May 1, and is seasonable in its tone:

"The season is fast approaching which is the Motorist's Delight. Very few can resist the 'Call of the Road.'



The Turner Garage, Peoria, Ill. The runway window is just inside the front doors at the right

"You will need tires.

"This season you can buy the very best there is made from us, namely: Goodyear, Firestone, Miller and Diamond tires. We have arranged to carry a full line of every size, including both Grey and Red tubes.

"You cannot fail in this splendid assortment to find the tire or tube you want, at the price you ought to pay.

"Do not fail to call on us when you need a Tire or Tube."

The trade of the customer was further cemented to the garage by this note August 1; it was one of the most effective of the notes:

"We make very little profit at the present rates charged for storage and service, and only by selling gasoline, oils, tires, etc., can a raise in rates be prevented. We can sell any article desired at market prices and ask you to kindly remember us. Best gas, 15 cents."

November 1—and it may yet be used to advantage by others—this note went out:

"Cold weather comes as a thief in the night, and your radiator and engine are frozen and bursted before you know it. See us about your anti-freeze mixture before it is too late.

"Why waste time and energy trying to start your car in a cold garage for a few paltry dollars? We have a few spaces for storage not yet taken for the winter. 'Come in.'"

Turner also gets out a 3½ x 6-in. blotter once a month. These, he states, are good advertising, but are not so effective as his notes and letters.

He is treasurer of the Garage Owners Association of Illinois, is a leader in the garage trade of the Middle West and has made and is making a keen study of his own and other garage businesses.

Chalmers Dealers Make Things Hum at the Factory

Are in for Annual Convention, and Meet for First Time in Company's New Auditorium—300 Cars in Street Parade

DETROIT, Nov. 15—The annual convention of the Chalmers Motor Co.'s dealers opened at the new auditorium of the Chalmers plant today. President Hugh Chalmers made the address of welcome. At this first meeting of the dealers with the officials of the company they were told that it is the intention of the Chalmers company to build 18,000 of the new Chalmers Six-30 cars, a new model which is now announced for the first time and which is to sell at \$1,050.

Out-of-town dealers have been coming in since Saturday and it is expected that fully 600 will be seated at the dinner which will be served tonight in the convention hall of the Hotel Pontchartrain. At this hotel 238 Chalmers dealers were seated at the breakfast tables this morning. A large number are registered at

other hotels. At the Pontchartrain, it was stated that the number of dealers there is the largest from one manufacturer which the hotel had to take care of during the last 4 or 5 years. During the morning, after the dealers had placed their orders, a parade of some 300 Chalmers cars was held.

Tuesday there will be business sessions throughout the day, and an inspection of the plant. In the evening a dinner and cabaret will be given at the Hotel Statler. Wednesday will be featured by a discussion of the new Chalmers Six-30 by Chief Engineer C. C. Hinkley. The afternoon will be taken up by a business session and the evening will see the close of the convention, the final event being a banquet to be tendered the dealers at the Detroit Athletic Club.

Turner's Method of Getting Winter Business

BEST EQUIPPED FIRE PROOF GARAGE IN THE CITY

TURNER GARAGE

AUTOMOBILE SUPPLIES
AND ACCESSORIES

C. L. TURNER, PROP.
FIRST CLASS MACHINE SHOP

OUR
WORK GUARANTEED

BELL PHONE MAIN 1605
2004-06 MAIN ST.

PEORIA, ILL., Jan. 1, 1915.

SUBJECT:

How to get better service and reduce
your automobile expenses for 1915.

Mr. John Brown,

Peoria, Illinois.

Dear Sir:

It is now near the time when your car will need an overhauling or looking over. Perhaps, your starting battery or starter will not work, or your engine may need decarbonizing and the valves ground, or transmission needs bushing up or new gears, or your magnets or lighting battery may need overhauling. We have a full machine shop including an Arbor Press. You may need a new tire or new lamp bulbs. Whatever, you may need, we want to serve you.

Do not worry about the pay, Mr. Brown, we are over our financial crisis, we hope, and we would rather do the work on the car before the spring rush is on, and wait until you are able to pay for the job. We can do the job better and cheaper during the winter months.

As to supplies, we want to be your jobber during the coming year, and whatever you need in accessories, we want to figure with you. We believe it is economy for a man to employ one doctor only, for the ills of his family. This doctor then becomes acquainted with every member of the family and their different ailments.

So with your automobile, we as repairmen, understand your automobile better every time we work on it, and know its general condition better than anyone else, and just what is liable to give you trouble. So long as we repairmen give you good service at a reasonable charge, why not give us your business? We can afford to give you better service and better prices because of your volume of business.

For 1915 we have engaged men whom we have known a long time, and who will give full value for every hour charged for. One of them is quite an expert at decarbonizing and we shall continue using the Oxygen process. We find that when it is done right, there is nothing better, and we absolutely guarantee the job.

Let us hear from you in regard to your repair work, or anything else you may need.

CLT/DEJ

Yours respectfully,

TURNER GARAGE.

By *Chas. L. Turner*

This letter was sent out January 1, 1915. It brought more work than anything else ever sent out by the Turner Garage. It filled the garage with work in January, February and March when other garages were idle and were complaining of dull times. And only

a few took advantage of Turner's time-payment offer. Turner is going to send a similar letter out this winter. Letters like this and sales promotion work of a seasonable and aggressive kind will do much to keep the garage going during the winter.

Steering Gear Makers Search Wearing Points and Seek to Eliminate Them

Lubrication of Parts with But Slight Movement One of the Problems to Be Solved—Maintenance Is Being Simplified

AS in other parts of the car, the steering gear has received its measure of attention during the year gone by, and the progress which has been made is noteworthy. In the majority of cases, this progress has been in the direction of improving bearings and bearing surfaces, for it is a matter of common knowledge that the steering gear, of all parts, is most prone to deteriorate and to cause trouble through the development of lost motion.

Usually wear takes place first on the pin or yoke joints at either end of the tie rod, second on the universal joints of the drag link, third in the gear itself, and fourth, in the axle swivels, though three and four may often be reversed in order. Wear in the actual steering gear is not so very troublesome, because there is frequently some means of taking up slack; also the opportunities for lubrication are ample so that undue wear in the gear generally means neglect on the part of the owner. All other parts, however, are difficult to deal with because the movement is so slight.

Lubrication a Problem

For the great majority of steering movements the wheel is not deflected more than a very few degrees back and forth, and this slight motion is of little value in distributing lubricant. Where grease is used, the lubricant is forced in by hand in screwing down the cup, and it then squeezes out of the loaded part slowly, staying out till such time as a fresh supply is injected. Oil would be able to find its way around the whole surface, but is apt in most cases to escape altogether, leaving the joints even more dry than where grease is employed.

The only way out of the difficulty that appears, is to make the joints self-lubricating, so that they require attention at long intervals only. Also a great help would be to increase the size of the parts and so decrease the pressures. Yet another aid to durability which is not exploited as much as it ought to be is to use non-rusting metals wherever possible; to put bronze bushings for the pins and to make joints which will be as nearly as possible waterproof. Leather boots or wrappings are a palliative only; however well made they may be, their life is fairly short and they are distinctly not engineering.

Taking the drag link connections first, these may be either ball joints or regular universals, the former being most used because it is cheaper and just as satisfactory if made properly. There have been a good many accidents due to ball joints dropping off, and many ways for preventing this have been devised; one of the simplest is shown in Fig. 1. This is not any particular joint but is the basic principle of several. The main idea is that the cups which press against the ball are backed by strong springs that take up the wear automatically, and if one spring breaks the other drives the whole assembly along till the neck of the ball is caught by the edge of the hole in the outer case. The only drawback to this style of joint is the difficulty or renewing lubricant, for to get grease between the ball and the cup it will not suffice to plaster the outside. To make certain of it the joint needs to be taken apart and greased. Mud and washing

water from a hose tends to remove the lubricant rapidly.

It is not easy to see how this type of joint could be entirely enclosed, but Figs. 2 and 3 are suggestive. The former adapts the idea of the self-protecting universal joint and would be oil retaining. The latter uses a short piece of flexible metallic tube which would hold soft grease and possibly a heavy oil. The device should greatly outlast leather, which never is completely waterproof and cannot hold oil.

A rather ingenious joint used by a few car makers is shown in Fig. 4; this is non-adjustable but it is to a great degree self-protecting. The feeding of grease to the interior of the ball ensures its reaching the working surfaces, and in exuding it drives dirt before it. Such joints will wear for years if the grease cup is given a turn every day, but their life depends upon this attention.

Peugeot Uses Universal

On the Peugeot racing cars there are no ball joints, the little universal shown in Fig. 5 being used instead. With this type grease can be supplied through hollow bolts as for a spring shackle bolt, and frequent attention to the grease cups will prevent wear. The universal type of connection is less easy to enclose, however, and when exposed is just as great a sufferer from neglect as the ball joint that is simpler and cheaper.

The original tie rod yoke was something like Fig. 6; the durability of this bearing has been increased greatly by widening the jaws so as to give more surface to the pin, as in Fig. 7. Wear on these joints is particularly annoying because it not only gives slack to the steering wheel, but it is liable to set up a continuous rattle that is most irritating. Here again lubrication is rendered difficult by reason of the extremely small angular movement and the only solution of the difficulty is frequent application of fresh oil or grease. The self-lubricating bushing of compressed graphite ought to find an application here, and there is no reason save cost why the pins should not be bronze instead of steel.

Some manufacturers of expensive cars have used ball joints for the tie-rod instead of ordinary yoke ends, and where there are self-adjusting springs this prevents rattle. Probably the greater difficulty of protecting and lubricating the

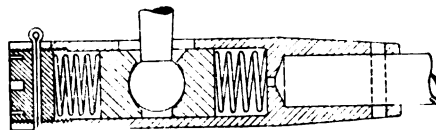


Fig. 1—Self-adjusting ball joint for drag link connections

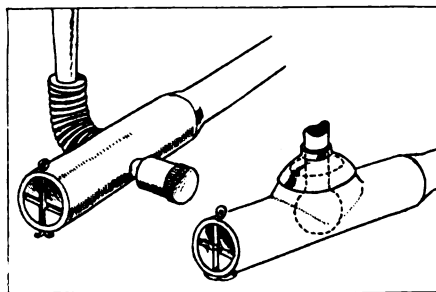


Fig. 2—Right—An adaptation of the universal joint case which might be applied to steering connections. Fig. 3—Left—Another suggestion for inclosure, using a short piece of flexible metal hose

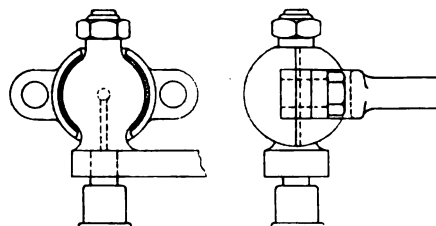
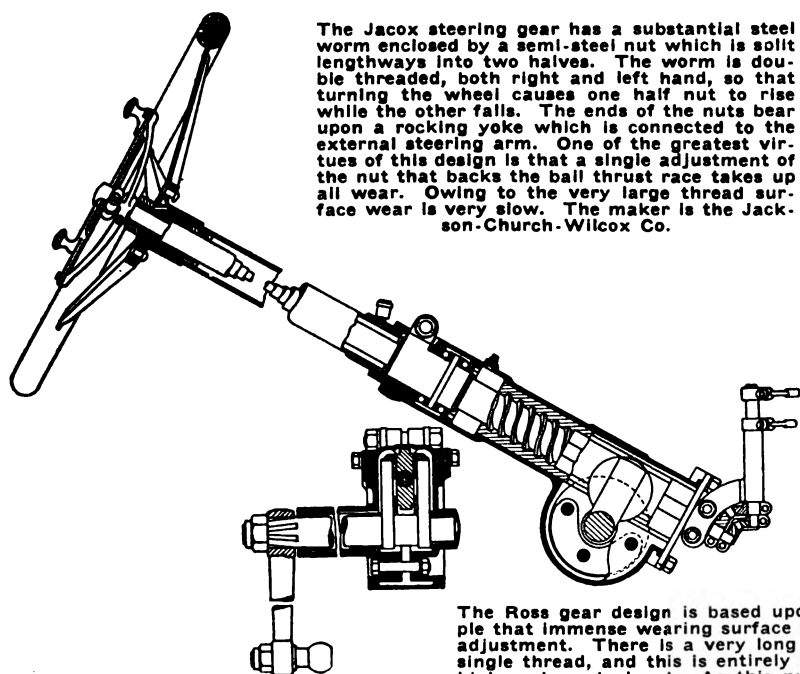
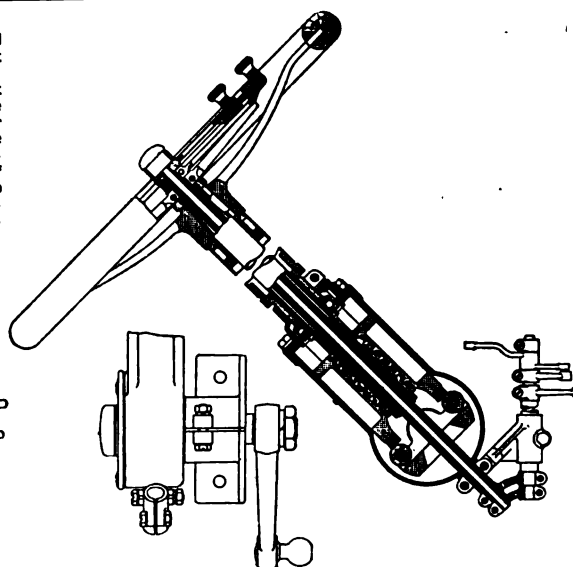


Fig. 4—A type of ball joint which cleans itself when the greaser is turned

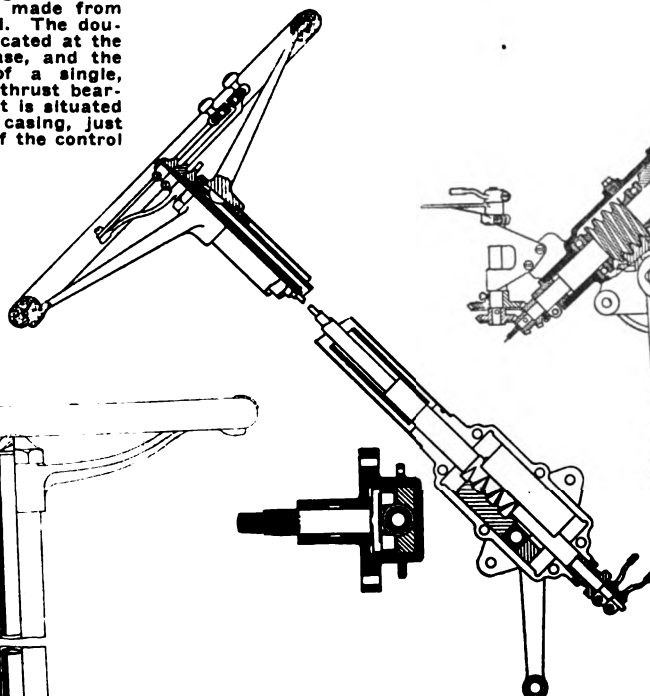


The Jacox steering gear has a substantial steel worm enclosed by a semi-steel nut which is split lengthways into two halves. The worm is double threaded, both right and left hand, so that turning the wheel causes one half nut to rise while the other falls. The ends of the nuts bear upon a rocking yoke which is connected to the external steering arm. One of the greatest virtues of this design is that a single adjustment of the nut that backs the ball thrust race takes up all wear. Owing to the very large thread surface wear is very slow. The maker is the Jackson-Church-Wilcox Co.

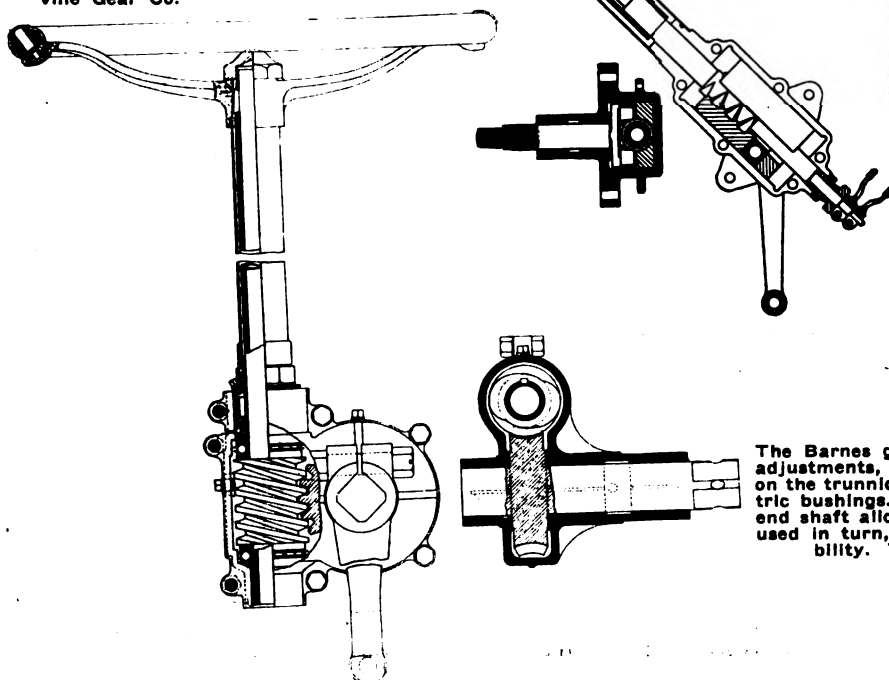


The Ross gear design is based upon the principle that immense wearing surface is better than adjustment. There is a very long worm with a single thread, and this is entirely enclosed by a high carbon steel nut. As this nut is lifted or lowered by the worm it swings a pair of arms on the trunnion shaft that engage with slotted circular plates set in holes in the sides of the nut, as shown in the end section. There is an adjustment for the double thrust ball race. The gear illustrated is a truck model, the Ross Gear and Tool Co. specializing upon heavy vehicle steering

The Lavine gear uses much the same principle as the Jacox, the difference being mainly in detail. That is to say there is a divided nut operating on right and left hand threads cut in a single worm, operating the steering arm through a rocking arrangement. The particular feature of this gear is that every wearing part is made from heat-treated alloy steel. The double thrust bearing is located at the bottom of the gear case, and the adjustment consists of a single, simple setting for the thrust bearing. The adjusting nut is situated at the bottom of the casing, just above the lower ends of the control levers. Wooden distance pieces are employed to keep the control tubes apart and to prevent rattle. The splined end on the trunnion shaft allows the steering arm to be set in the position desired by the chassis maker. This gear is made by the Lavine Gear Co.



The Warner gear is one of the most widely used and is representative of modern worm and wheel practice. There is an adjustment for the thrust bearing behind the worm and an eccentric bushing allows the worm wheel to be brought into closer mesh as wear may create small backlash. It may be noticed that the trunnion shaft has one long bearing with a readily accessible adjusting screw. The Warner gears are somewhat lighter this season by reason of a more compact design which reduces the overall size while maintaining the wearing surfaces. They are made by the Warner Gear Co.



The Barnes gear is a worm and wheel pattern having two adjustments, one back of the thrust bearing and the other on the trunnion shaft bearings, the shaft being held in eccentric bushings. The use of a full worm wheel and a square end shaft allows the four quarters of the worm wheel to be used in turn, thus providing yet another increase of durability. This gear is made by the Barnes Gear Co.

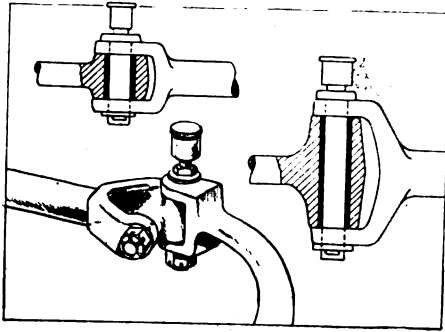


Fig. 5, center—Little universal used instead of ball joint on Peugeot racers. Figs. 6, upper, and 7, lower—Contrasting the width of yoke end on the tie rod as it used to be and as it is now in many cases

ball joint offsets the main advantage, however.

There are two types of front axle, the most popular in America being that sketched in Fig. 8, and the one most used in Europe in Fig. 9. The difference is that in the American pattern the thrust bearing is located at the upper end of the swivel pin, while in the other variety it is at the bottom. From the viewpoint of freedom in steering it is an advantage to use a ball thrust bearing, but there are two drawbacks; firstly water, if it enters, as it practically must do sooner or later, will destroy the balls and races immediately; secondly, the movement is normally so slight that the balls tend to make pits in the races due to repeated shocks. Thus the plain thrust is better if only it can be lubricated. Obviously, a plain thrust bearing with an area of 2 sq. in. or so and with a load of 1,000 lbs. on it is not easy to grease, and the grooves cut in the face of the washers do not help much as there is so little movement to distribute the grease.

Effects Thrust Lubrication

It has often been an ideal with designers so to arrange the thrust bearing that it is permanently in a bath of lubricant. In Fig. 10 the Sunbeam design is shown, and it may be noticed that the big brass cap at the top entirely protects the ball thrust washer from water, which could not reach it by any possibility. Also, it is only necessary to remove the cap and fill it with grease about as frequently as is necessary with hub caps. This example is chosen as being one of the first attempts, but the same idea appears in various forms in a good many modern designs. Excellent steering swivels have been made with all ball bearings, both of journal type and cup and cone type. Also swivels have been made with taper roller bearings, but the plain bearing for the pin, combined with a properly lubricated thrust, also plain, gives as good an effect as the expensive combinations.

Probably the reason that the detail of steering gear has had so little attention

is that the cheapest forms will operate fairly well if they get a complete overhaul every 10,000 miles or so. For a really cheap car this is good enough but the buyer of an expensive machine is quite capable of appreciating a design which would reduce the trouble of lubricating and enable the steering to be maintained in its original state of efficiency for the life of the car without re-bushing joints. For the manufacturer who wants a novel talking point, safe, easy and durable steering offers a hitherto neglected opportunity.

Absolute Irreversibility Undesirable

For the passenger car, an absolutely irreversible steering mechanism is not desirable, for it destroys the "feel" which is essential to quick steering and is obtained by a gear that is just a little short of being quite irreversible. It is necessary to strike the happy mean.

In the main, steering gears divide into two types, those with a short worm and worm wheel, or part of a wheel; and those with a screw and nut. The former is the simpler, but it is less easy to adjust for wear and it does not give so large a wearing surface. In early attempts with the screw and nut type the advantage of big contact on the thread was often lost by the use of some sort of rocking joint which had a very small surface, but this has been corrected, and today there are plenty of nut gears possessing remarkable durability.

Worm and Wheel Simplicity

Simplicity favors the worm and wheel type, and if this is well made with a good size of thread its durability is excellent. Practically the only adjustment possible is to mount the worm wheel on eccentric bushings so that it can be brought into closer contact with the worm as it wears, but this adjustment is imperfect, because wear is never even since it nearly all occurs at the center position corresponding to a few degrees of steering movement only. The idea of using a complete worm wheel instead of a segment is that when one quarter of it has worn, the wheel can be removed from its shaft, given a quarter turn, and replaced with a fresh, unused surface to the worm. If the worm is the hardened member of the

two this practically quadruples the life of the gear.

A nut gear can be adjusted in several ways, and needs an adjustment for the rocker bearing as well as for the nut.

In the design of these gears there have been only detail changes for some time and they are mostly of a quality that precludes the probability of alteration. Here and there weight has been reduced by simplification of design and by the use of materials of greater strength.

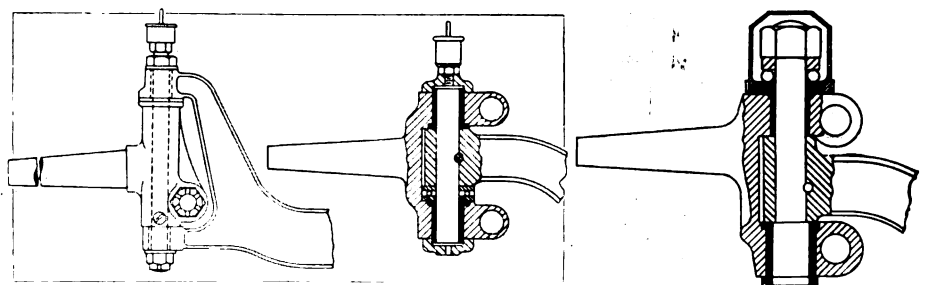
In general, the aim of the maker of the gear is to provide the largest bearing surfaces possible with reasonable weight and size, so that adjustment shall be necessary only at very long intervals. There are, of course, very many different patterns of steering gears, but in selecting the few which are illustrated in section it has been attempted to cover the main principles in common use.

Alteration of Rake

A feature of steering gear construction which is obtaining greater attention is the inclusion of some device whereby the rake of the column or post can be altered. Ability to adjust the angle is very useful to the car manufacturer, who usually is well cared for by the steering gear specialist. It is to be regretted that the car maker so rarely constructs the body and the clamping arrangements for the gear so that the user is able to swing the gear an inch or two forward or back to suit his stature.

In mounting the different parts of the gear, ball bearings are almost always employed for taking the thrust of the worm or screw, except in gears which are subjected to very violent shocks, as in heavy trucks. For journal bearings there is a marked trend towards the ingenious self-lubricating bronze bushings with graphite inserts.

Another point which has caused trouble in the past, but has now been overcome, is that of rattle between the several tubes inside the post which connect with the control levers above the steering wheel. Sometimes this is overcome by knurling the tubes or raising collars on them, sometimes by the insertion of bronze bushings and sometimes by wooden spacers. All seem equally effective in service.



Left—Fig. 8—Type of front axle end most used in America. Center—Fig. 9—Type of axle most favored in Europe. Right—Fig. 10—The Sunbeam axle swivel which requires lubricating only at long intervals

Five Anti-freezing Mixtures

Freezing Point Varies With Material Used—What to Use and the Cost per Gallon

ALCOHOL, glycerine and calcium chloride are the three substances that are most generally used for anti-freezing mixtures, but this year glycerine is almost too expensive to be considered with the price averaging \$4.50 per gal. There are many other liquids that have a low enough freezing point, but are objectionable because they evaporate too quickly, do not carry away the heat rapidly enough, corrode the parts of the cooling system, leave a deposit in the radiator, do not flow freely or are too expensive.

A solution of alcohol in water most nearly fills the requirements of a perfect anti-freezing mixture. Either wood or denatured alcohol may be used and can be purchased by the barrel for about 50 cents per gal.

The advantages of alcohol are that it is very easily handled, and has no corrosive action on the cooling system.

Wood vs. Denatured Alcohol

Wood alcohol freezes at a lower temperature than denatured and therefore less is required when mixed with water to produce a certain freezing mixture, but this advantage is largely offset by the fact that it evaporates more rapidly and therefore wood alcohol must be added to the solution more frequently.

The number of parts of wood or denatured alcohol to give a certain freezing mixture may be obtained from the curves, Figs. 4 and 5.

In using calcium chloride care must be taken to obtain it chemically pure, as the commercial variety contains free

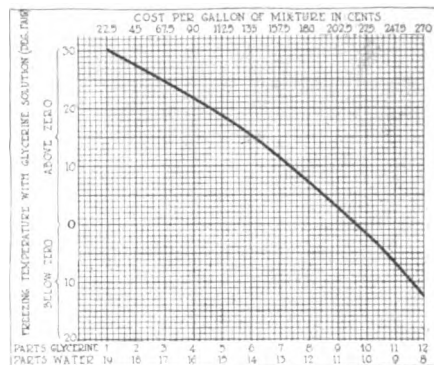


Fig. 1—Glycerine solution. Curve shows parts of water and glycerine to give various freezing points down to 10 below zero

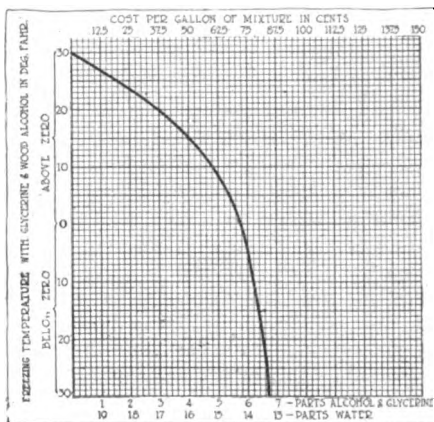


Fig. 2—Alcohol and glycerine in equal parts. This mixture may be used for temperatures down to 30 below or more

acid, which reacts on the metal parts of the cooling system. If it is impossible to obtain it chemically pure the chloride may be made fit for use by adding ammonia or soda potash gradually until blue litmus paper no longer turns pink when moistened with the solution. The amount of calcium chloride to use for various freezing temperatures may be

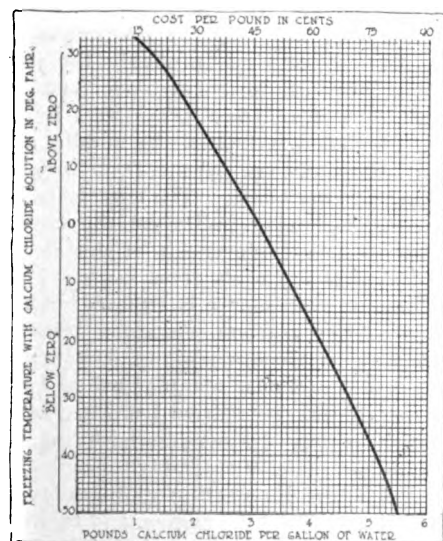


Fig. 3—Calcium chloride solution. Good for extreme temperatures. Cost runs up to 80 cents per gallon

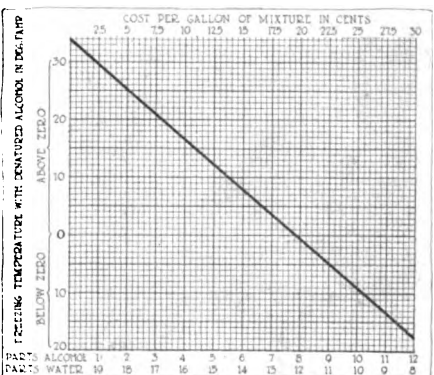


Fig. 4—Denatured alcohol. This is probably the most satisfactory solution

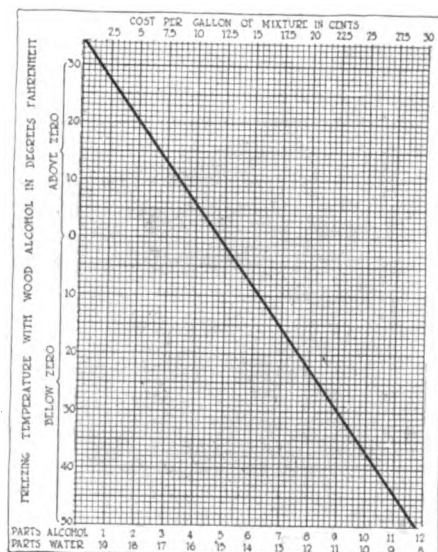


Fig. 5—Wood alcohol. It has a low freezing point but evaporates rather easily

found from the curve, Fig. 3. The average price is about 15 cents per lb.

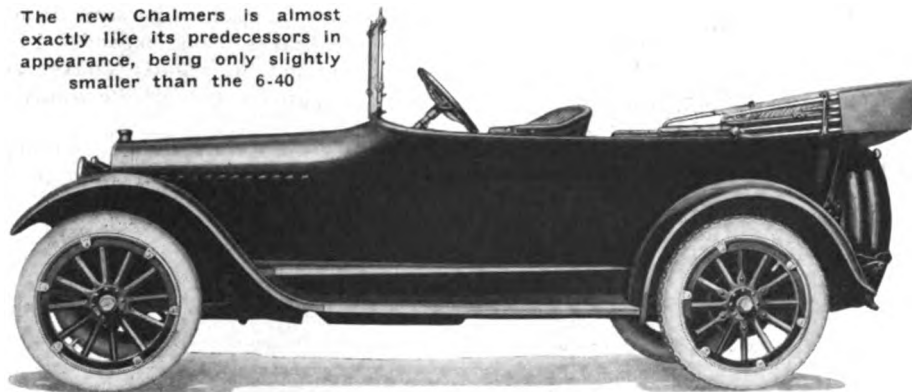
Aside from the expense, there are many objections to the use of glycerine and water; when enough glycerine is added to produce a low freezing point there is danger of rotting the rubber hose connections and it is so gelatinous that it does not flow readily. This is a great objection, especially in a thermo-siphon system. Glycerine has the advantage, however, that it does not boil away rapidly. Fig. 1 is a curve which gives the proportion to use.

The difficulties in the way of using glycerine and water alone have led to the use of a mixture containing alcohol in addition. In this way a solution is obtained that has, in a large measure, the good points of both alcohol and glycerine. The presence of the glycerine raises the boiling point, thereby reducing evaporation, yet the glycerine is sufficiently diluted to allow a free flow and to reduce its action on the hose connections to a negligible amount. The alcohol and glycerine are generally added in equal parts to the water, the amount depending upon the freezing point desired. Fig. 2 shows the proportions to use.

Average Capacity 6 Gal.

The capacity of the average cooling system is about 6 gal., though the figure for individual cars varies widely. For example, such cars as Briscoe, the smaller Buick, Dort, Ford, Great Western, Maxwell, Oldsmobile and Scripps-Booth require about 3 to 4 gal. Larger cars, like the Auburn, Cole, Lewis, Marmon, Moline-Knight, Stearns-Knight and Winton require about 8 gal. Commercial vehicles as a rule require about 8 to 9 gal. of solutions. Where thermo-siphon circulation is used it is imperative to see that there is always plenty of solution in the system or circulation will cease.

The new Chalmers is almost exactly like its predecessors in appearance, being only slightly smaller than the 6-40



Chalmers Brings Out New Six at \$1,050

Motor, of L-head Type, Capable of High Speed—Choice of Colors Is Offered

IT IS becoming recognized that it is possible to build a really high-class, well-made and finely finished six-cylinder car for about \$1,000, and the latest addition to this class is a new Chalmers product. With a five-passenger body and full equipment the price is \$1,050, and this includes finish in a choice of colors.

In external appearance the new Chalmers is a reduced scale model of the six-40. It has the same graceful outline, and the hood and radiator are so alike that it is only in the presence of a six-40 that the difference in size becomes noticeable. At present only the five-passenger type will be made, but a roadster is in preparation. Inside, the front seat is wide enough to accommodate driver and passenger without cramping the former.

Upholstery is leather with a bright finish, and the top is of heavy material and clips neatly to the top of the windshield when erected. Undoubtedly one of the most attractive things about the car is the really excellent paint work, the colors, blue or dark red or green, are good, rich tints, and the hood is

painted, too, not enameled. The fenders are a smoothly rounded shape and the whole machine is distinctly better than its photograph, a thing which is not an invariable rule.

The new engine is typical of modern L-head design, giving its maximum power at over 2,500 r. p. m., and at this speed it produces a horsepower for each 5 cu. in. of displacement. The formula power is 25.4 horsepower and the actual maximum over 45 horsepower, the displacement being 224 cu. in.

With the desire for eliminating vibration, a very large diameter has been chosen for the crankshaft, the three bearings being 2 3/16 in., 2 1/4 in. and 2 5/16 in. diameter, respectively, reckoning from front to rear the difference in diameter being to allow for economical, accurate manufacture. Furthermore, as a vibration reducer and efficiency increaser aluminum alloy is used for the pistons, these being made by the permanent mold process. The connecting rods are quite light forgings, so the total reciprocating mass is small for the bore.

Valves are 1 3/8 in. with a lift of 5/16

THE NEWEST CHALMERS

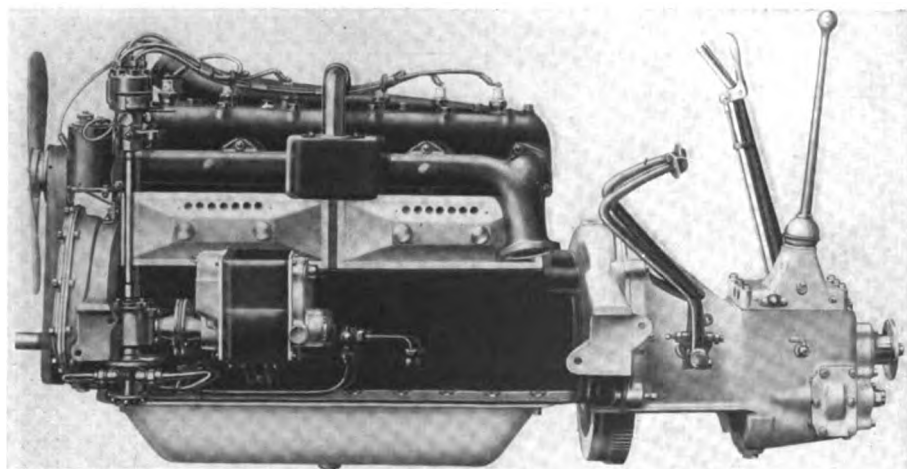
Price—Five-passenger	\$1,050
Color	Optional
Number of cylinders	Six
Shape	L-head
How cast	Block
Bore	3 3/4
Stroke	4 1/2
S. A. E. rating	25.4
Ignition	Remy
Carbureter	Stromberg
Starting-lighting ...	Westinghouse
Clutch	Dry disk
Gearset	3-speed
Wheelbase	115
Tires	32 x 4
Make of axles	Timken
Type rear axle	Semi-floating

in. and special attention should be given to the lightness of the tappets and the method for attaching them. Cylinders and crankcase are a unit casting, but the tappets are assembled in sets of six in two cast iron "racks" which are afterwards bolted in place, this making for accuracy and facilitating the assembly. Plenty of space is allowed the valves in every respect, both as to port area and cooling water and around the tappets. A detachable cylinder head makes for accessibility and ease in removing carbon deposit.

One of the neatest parts of the engine is the oil pump and ignition assembly, this being a separate unit bolted to the side of the crankcase at the front end on the left side. Every part is accessible to the last degree and the outside situation for the oil pump helps in cooling the oil.

Pressure feed to the main bearings and dip troughs for the remainder of the engine form the lubrication system, while there is an easily visible level gauge on the right side of the motor adjacent to the filling cap. A peculiarity is the fan, which is probably the simplest two blade form ever conceived. A simple piece of stout sheet steel is cut and riveted to a hub at the middle, and then the ends are bent a little to give a pitch to the blades. The extremely inexpensive driving pulley on the crankshaft is also a clever bit of design, as this is practically all press work.

The starting motor is situated on the side of the gearbox, engaging the flywheel by a Bendix pinion. The motor is of Westinghouse manufacture and the generator takes its drive from the same pinion as that connecting with the oil pump and ignition assembly. Using this location for the starting motor adds to the space around the engine, and thermosyphon cooling being employed also relieves the power plant of an accessory. The distributor is a Remy product and the carbureter a 1-in. Stromberg.



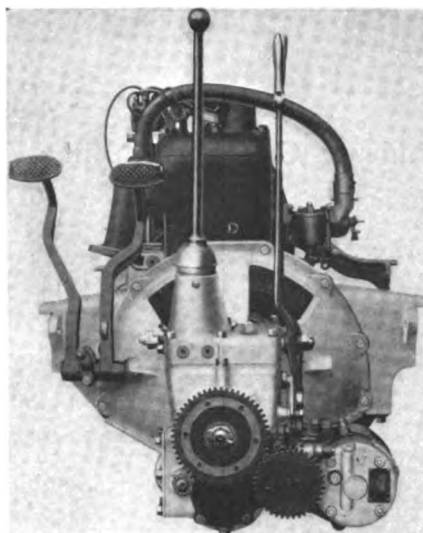
The motor is an exceptionally clean design with manifolds well out of the way of the valve mechanism and other parts easily accessible

Bolted to the motor are the three-speed gearset and the clutch, the latter being the same dry-disk pattern used on other Chalmers models. The inner part is very light in weight, this aiding gearshifting to a pronounced degree and a generous use is made of stamped parts. Having multiple springs the adjustment is very easy, and all parts of the clutch are accessible from beneath, the fly-wheel being enclosed only as regards the upper half.

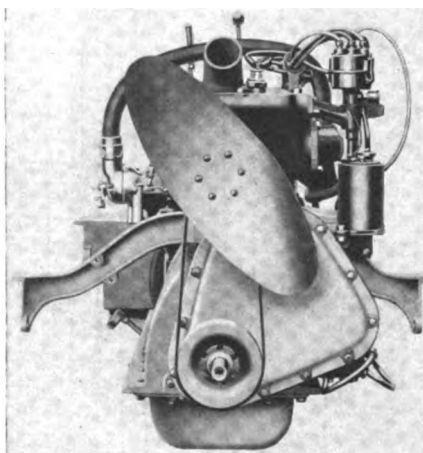
In the gearset the outstanding feature, apart from a general compactness, is the size of the Hyatt roller bearings used. Oil is the recommended lubricant, and there is a brass cock to gauge the proper level. There is a plain bearing at the rear end of the main shaft to take thrusts due to gear shifting or to the propeller shaft, so that the ball bearing in the clutch and the thrust washer on the front part of the main shaft are practically the only ball bearings used in the car, since the axles are Timken equipped throughout.

Hotchkiss drive is used, with a tubular propeller shaft, the rear springs being half elliptic, 54 x 2 in., and the rear axle is the new Timken semi-floating pattern with spiral drive and brake drums 12 x 2 in. The gear ratio on high is 4.75 to 1, and the tires 32 x 4 in., so the motor speed is fairly high, the maximum peak of the power curve being reached at a little over 50 m. p. h. At 1,000 r. p. m. the car speed is 20 m. p. h. and at 1,000 ft. per min. piston speed the car rate is just 15 m. p. h.

The new axle is typically Timken, having the pressed steel case and taper roller bearings throughout, but the road wheels fit directly upon the ends of the drive shafts. Brakes are, of course, both



The Chalmers power plant is a unit with gear shift and brake levers rigidly mounted. Speedometer drive is from the propeller shaft



The fan is an exceptionally simple one-piece design with but two blades

internal and external to the same drums, the inside brakes being expanded by a cam action and the regular Timken adjustable toggle is used for the contracting brake.

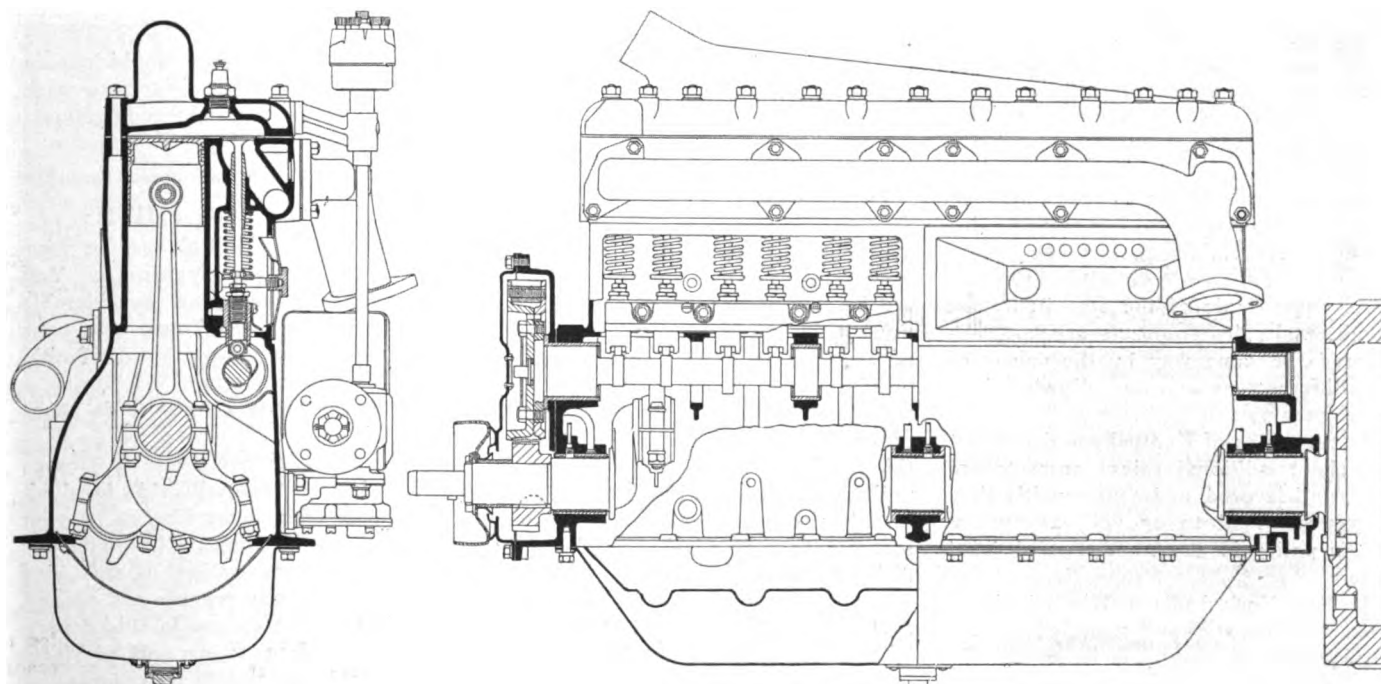
A feature of the car is the strength of the frame, which is 5 in. deep at the center and for the larger part of the length. Quite a thin steel is used, the thickness being only $\frac{1}{8}$ in., and the section is $2\frac{1}{2}$ in. wide. Over the rear axle the frame sides are raised in a short curve, and to give increased rigidity at this point the top and bottom flanges are bent over a little on their edges, so putting a kind of bead on the edge and stiffening the channel section.

Steering is by worm and full worm wheel, with an eccentric adjustment for taking up slack, and the connections are laid out well, ample size being given to the ball joints and yokes. The front axle is a Timken with taper roller bearings for the road wheels.

Before passing to the body, mention may be made of a detail of manufacture which should be much appreciated, this being the employment of a wiring unit, all wires being enclosed in a single outer tube. There is no junction box, since the wires attach directly to terminals on a plate which sets in the cowl board and carries the switch, ammeter, etc. It is a matter of minutes only to remove this wiring unit and put in another.

Hudson to Erect Building

NEW YORK, Nov. 16—The Hudson Motor Car Co. has purchased a site, 100 x 100½, on the north side of West 67th street, 125 feet east of West End avenue, and will erect a six-story automobile building to cost \$150,000. The site cost \$55,000.



End and side sections of the new Chalmers motor, showing liberal size of crankshaft, and details of the valve-operating mechanism. The igniter is mounted high and the cables are quite short

Dealer's Legal Status

"Whose Claim Comes First Under a Conditional Bill of Sale—the Dealer's or Repairman's?"—Answer
Differs With the State

By George F. Kaiser

DISPUTES are continually arising between dealers who have sold motor cars on conditional bills of sale and garagemen and repairmen who have overhauled or repaired the cars after they have gone out of the possession of the seller but have not yet been entirely paid for.

The dealer who sells the car conditionally naturally thinks that, as he has reserved title in the car in himself until such a time as the full amount of the agreed purchase price shall be paid, the car should not be subject to a repairman's or garageman's lien until the whole of the purchase price is paid.

Repairmen Claim Priority

The garageman and repairman, on the other hand, contend that their lien shall attach to the vehicle as soon as their work is completed and their bill is rendered irrespective of the fact of whether or not the whole of the purchase price has been paid or who the actual owner may be, as the labor performed and the material furnished in the overhauling or repairing of the car tend to improve and preserve the property and oftentimes they have no notice of any kind that the man who requests them to repair his car is not the sole and unconditional owner.

The courts of the various states do not agree on the answer to the question—Who Comes First?—Some hold that the dealer who sells his cars under a conditional bill of sale comes first, and others hold that the repairman and garageman has a lien which comes prior to all other claims against the motor car.

As an example of the statement that conditional sales contracts are not considered the same way by the courts of the different states, the following is a good example:

In the states of Kentucky and Tennessee the conditional sales contracts are not at all favored, and consequently they have been held to be void as against public policy in any number of decided cases.

In New York, Indiana, Mississippi and Texas the courts have regarded them a little more favorably and accordingly have held them to be valid as between the parties who make them and also as

against those people who have notice of them. This is only held to be true, however, when they relate to specific articles, like automobiles, gasoline pumps, etc.

Ohio, Minnesota, North Dakota and Wisconsin are still more lenient with regard to their interpretation of contracts of this character and hold that they are binding and valid, except when they are not filed or recorded in the proper office, as required by statute. When they are not so filed they are held void as against people who innocently purchase the property or accept mortgages on it without notice.

Michigan, Massachusetts, Vermont, Connecticut and Arkansas are most liberal with regard to their interpretation of conditional sales contracts and strongly favor them and hold them to be valid against all persons, even including mortgagees.

The courts of New York, California, New Jersey, Nebraska and Mississippi in automobile cases have held that a repairman's lien has priority over the rights of a person who sells a motor car conditionally. On the other hand, some of the other states hold to the contrary and under decisions of this kind the repairman or garageman must first pay whatever part of the purchase price is unpaid before he can subject the motor cars to sale under his lien.

Up to the Lawmakers

The result of the conflicting rules in the various states is that the ordinary garageman or repairman or dealer is very uncertain as to just what his rights are in any given case. This will continue to be true until the legislatures of the various states shall specifically provide which claim shall have a prior right, or until such a time as the courts of all the states shall have passed upon this particular point, and even then it is unlikely that there will be any unanimity in either the decisions or legislation unless a uniform lien law is adopted by the different states.

SUB-DEALER CAN BE WHOLE-SALER DESPITE CONTRACT

That a subdealer may furnish cars to another dealer in different territory at

wholesale prices in violation of his sales agency contract without having to pay damages if the dealer fails to terminate the contract immediately and allows the subdealer to continue to represent it, was decided by the Court of Civil Appeals of Texas. (*Doering vs. Denison*, 178 S. W. 1018.)

HOW FAR DEALER MAY GO IN PRAISING A CAR

Only the other day I was asked by a dealer, who is a most enthusiastic admirer of a certain make of motor car for which he is the dealer, how far he could go in praising a car sold by him when talking to a prospective purchaser without making himself liable for suit for breach of warranty.

Dealers need not fear suits of this character because of remarks made by them in their desire to sell a car, if they will only keep a few simple rules in mind.

When there is a written contract with an express warranty, the courts will not consider any verbal warranty which the purchaser claims was made covering the grounds contained in the express warranty, and unless fraud and deceit are shown on the part of the seller, the purchaser can only recover damages and rescind his contract when a breach of the express warranty is shown.

Fraud and Deceit

A good example of fraud and deceit would be to claim that a car was thoroughly tested, or that it had been thoroughly overhauled, when in fact it had not been so tested or overhauled and the seller knew that to be the case.

An implied warranty might be illustrated by a case where a dealer sells a car, impliedly warranting that it is suitable for some particular use in a certain business.

An express warranty would be to warrant specifically that a car was made of first-class materials by competent experienced mechanics, etc.

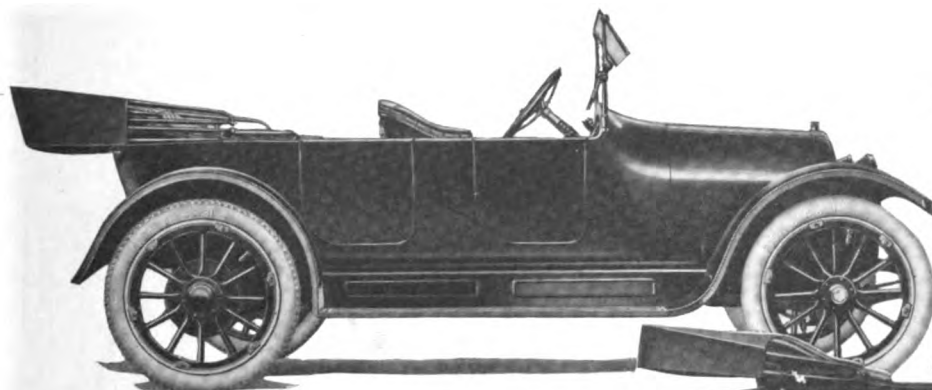
YOU AND SMITH

You have Smith's car in your shop. You are repairing it. You already have done considerable work on it. And now you have gotten into a dispute with Smith. He says he's darned if he'll pay.

What are you going to do about it?

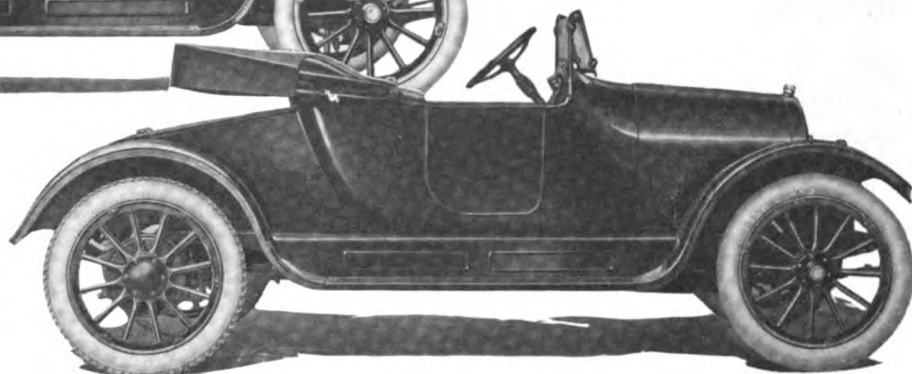
Why not drop a line to George F. Kaiser, Motor World's legal advisor? Get some idea as to your rights before you get in too deeply. A little preparation of this kind may save you trouble and money. And advice to you in this department is free—it is a part of Motor World's service to its readers.

Many New Features in Overland \$615 Model



Cantilever Springs and Block Motor With Detachable Head

The new model has the characteristic Overland hood and body appearance. The body is well-proportioned and the exterior is smooth. Touring and roadster are on the same chassis



THE new Overland four-cylinder model is a typical Overland design and sells at \$615 with touring body and \$595 as a roadster. The characteristic hood and body appearance that are associated with all models manufactured by the Willys-Overland Co., Toledo, are in evidence, although the chassis throughout is entirely new in design.

The motor is a $3\frac{1}{8} \times 5$ block with cylinders and crankcase in unit, and the head detachable. Chains drive the magneto, camshaft and generator. The rear springs are cantilevers, and though the gearbox is in unit with the rear axle as in other Overlands, the axle and the gear assembly are new in design.

The plan of the Willys-Overland Co. is to make these cars on an enormous scale. However, the point is emphatically made that the car is not to supersede any other model, the present \$750 model 83 being continued on as large a basis as heretofore. It will also not have any effect upon the output of the Willys-Knight or of the six.

The motor is exceedingly compact. There is no intake manifolding, the carbureter bolting to an opening at the center of the casting below the exhaust manifold. The gases are led through cored passages. The cylinder head carries the water outlet connection, the spark plugs and the priming cups. A single cover plate goes over the valve tappet chamber.

Although the formula rating is 15.64 hp., the developed power is 28 at 2,000 r. p. m. The pistons are light, as are the rods and their assembly. With a crankshaft $1\frac{1}{2}$ in. in diameter, the light reciprocating parts make high speed attainable with no effort and with a commendable lack of vibration. One piston and its rings weighs 1.9 lb. The pistons are of cast iron, have the pins clamped in the rods and carry two concentric rings each.

Valves have $1\frac{9}{16}$ in. clear opening and lift $\frac{5}{16}$ in. One noteworthy feature of the valve assembly is the method of valve actuation and the ease of adjustment. There are no tappets. Interposed between the valve stems and the cams are rockers pivoted on a rocker shaft just inside the valve compartment and readily accessible. The adjustment is on the lower end of the valve stem. A round-end nut screws to the end of each rod, and is held by a lock nut.

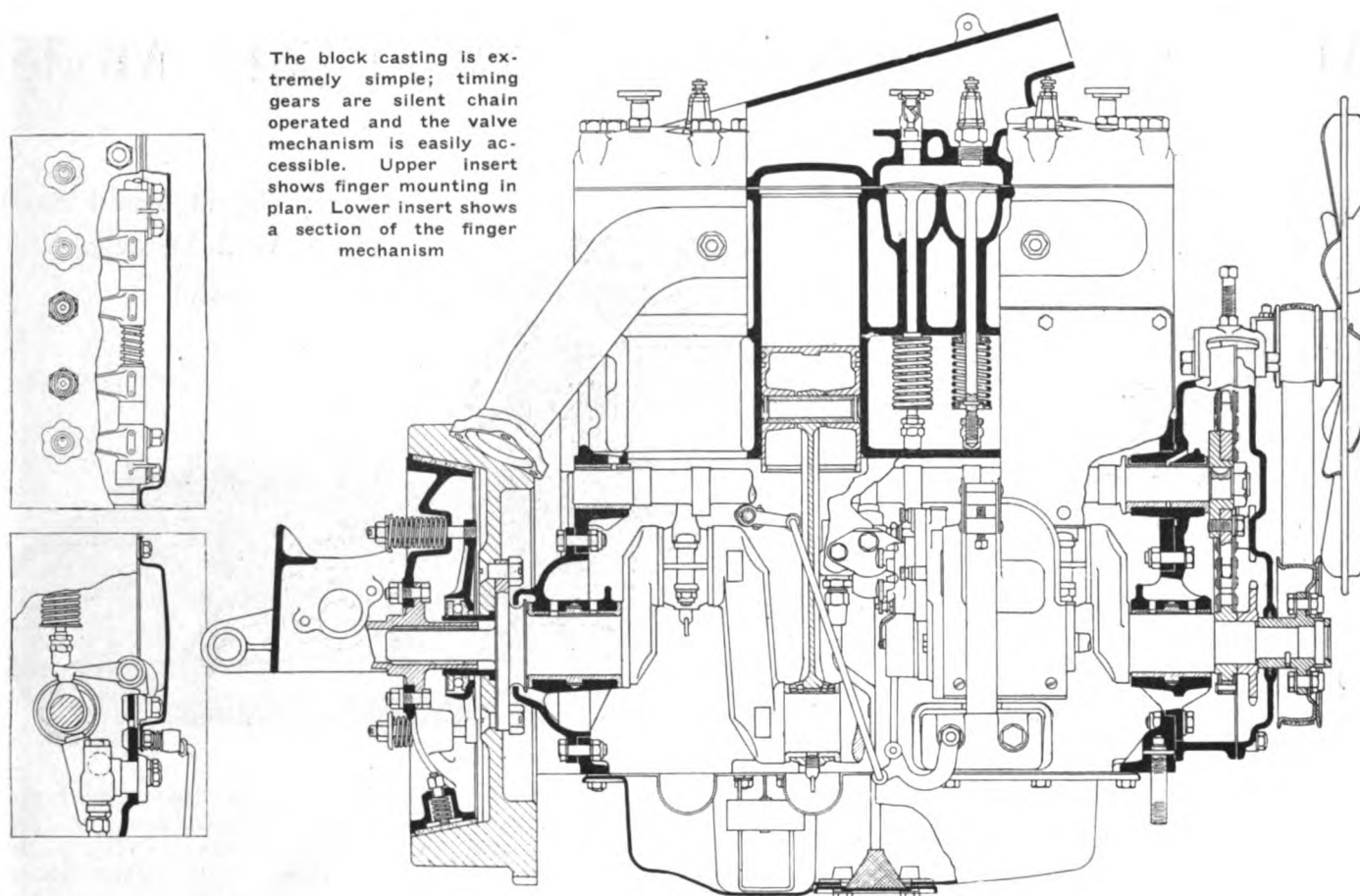
Should it be required to take the rockers from under the valve stems, it is but the work of a moment. They are free on the rocker shaft within sufficient range to allow them to clear the valve rods. Springs hold them against shoulders on the rocker shaft, and by pushing them along the rocker shaft against the spring pressure they are freed from the cams and valves. The whole rocker assembly bolts to the side of the cylinder casting so that it is immediately within reach when the cover plate housing it and the valves and springs are removed.

Both the camshaft and the crankshaft are carried on two bearings. The latter is assembled through an opening in the flywheel end of the crankcase, a plate opening that is large enough for the shaft to pass through. The front bearing is $2\frac{5}{8}$ in. long and the rear 3 in. long. Connecting rod bearings have the same diameter, and a length of $1\frac{1}{4}$ in. The camshaft front bearing is $1\frac{1}{8} \times 2\frac{5}{8}$ in. and the rear $1\frac{1}{8} \times 1\frac{3}{4}$ in.

At the center of the camshaft there is an extra cam which operates a plunger oil pump that keeps a constant level of oil in the individual splash troughs, drawing its supply from the oil reservoir in the base plate of the engine. A very legible float oil gauge on the left side of the engine shows the amount of lubricant. This gauge housing also acts as the filler.

Drive to the camshaft, magneto and generator is by silent chains. In the chain layout the inner chain is a triangular drive with an idler to keep it tight. This chain runs over sprockets on the crankshaft, camshaft and magneto shaft. Outside of this is the chain that drives the generator from an outer crank-

THE NEWEST OVERLAND	
Price—	Model 75
Touring	\$615
Roadster	595
Color	Black
Make of motor.....	Own
Number of cylinders.....	Four
Shape	L-head
How cast	Block
Bore	$3\frac{1}{8}$
Stroke	5
S. A. E. horsepower.....	15.64
Clutch	Cone
Starting-lighting system	Auto-Lite
Gearset	3-speed
Wheelbase	104
Front tires	31×4
Rear tires	31×4 non-skid
Make of axles.....	Own
Type rear axle.....	Floating
Equipment: Demountable rims,	
ammeter, robe rail and foot rail,	
ventilating windshield, one-man	
top, speedometer, electric horn,	
license bracket, tire carriers at	
rear, set of tools, extra demount-	
able rim, tire repair kit, jack,	
hand tire pump.	



shaft sprocket. The idler works against the outside of the chain, between crankshaft and magneto sprockets. A coil spring with a tension adjustment draws on the end of a small yoke member that carries the idler. To still further strengthen the idler mounting and keep it in position there is another member, pivoted at its upper end to the cylinder casting, and having an arm running to the sprocket center on either side. There is means for taking up any slack in the generator chain at the generator end.

Auto-Lite two-unit starting and lighting are incorporated. The generator unit runs at $2 \frac{1}{5}$ times engine speed. The starting motor, geared 11 to 1 to the teeth on the outer rim of the flywheel, is equipped with the Bendix automatic shift.

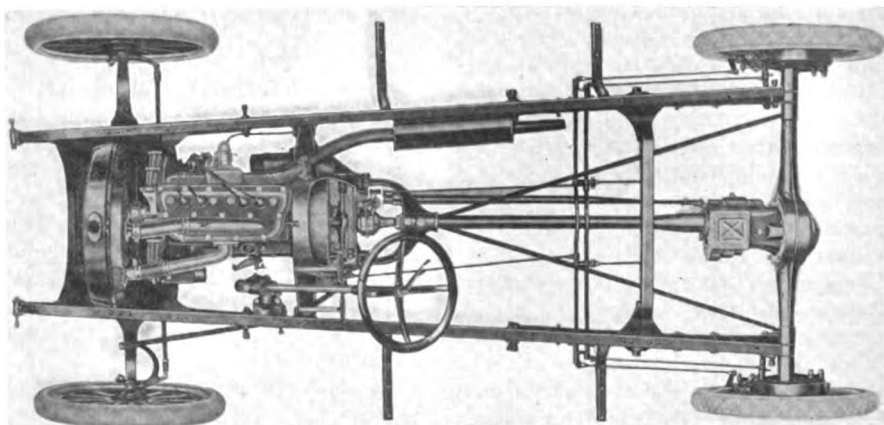
Three-point engine suspension is attained by resting the front on a frame cross arm and bolting the rear of the motor to an arm construction that performs the functions of partially enclosing the flywheel, carrying the clutch throw-out, the pedal and gearshift controls, and acts as the support of the ends of the yoke which is the termination of the torsion tube.

Drive is characteristically Overland, with the hinged yoke carrying the front of the steel torsion tube, the rear end of which is flanged to the front of the gearbox. The clutch is leather-faced, on an aluminum cone with spring inserts

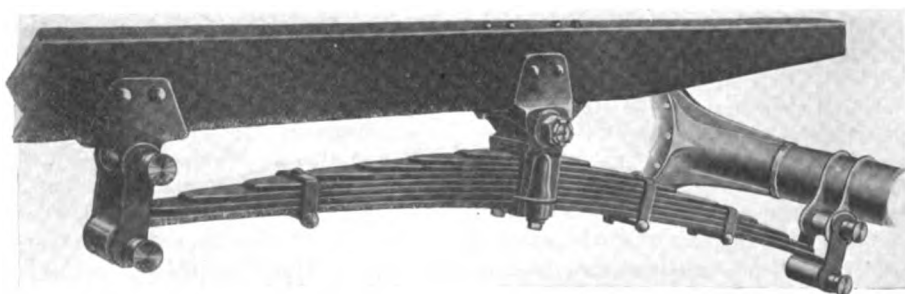
under the leather and three engagement springs equally spaced. There is a small adjustable clutch brake with a fiber facing that acts against the clutch cone

when disengaged, stopping it from spinning.

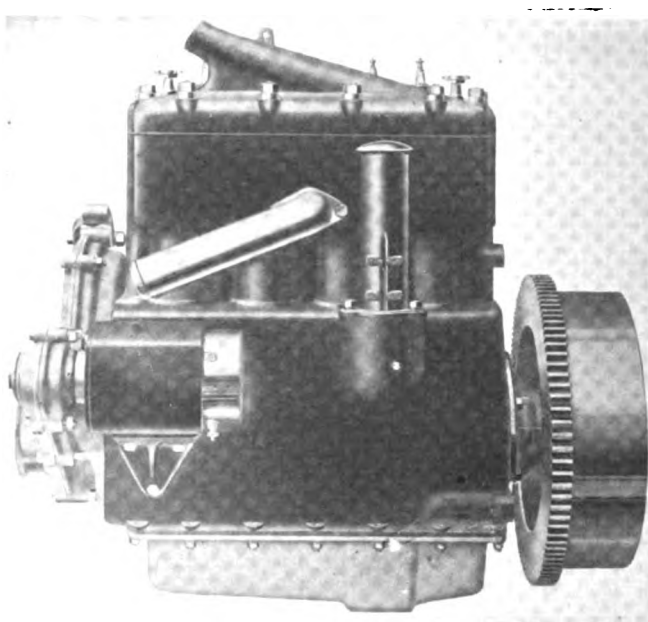
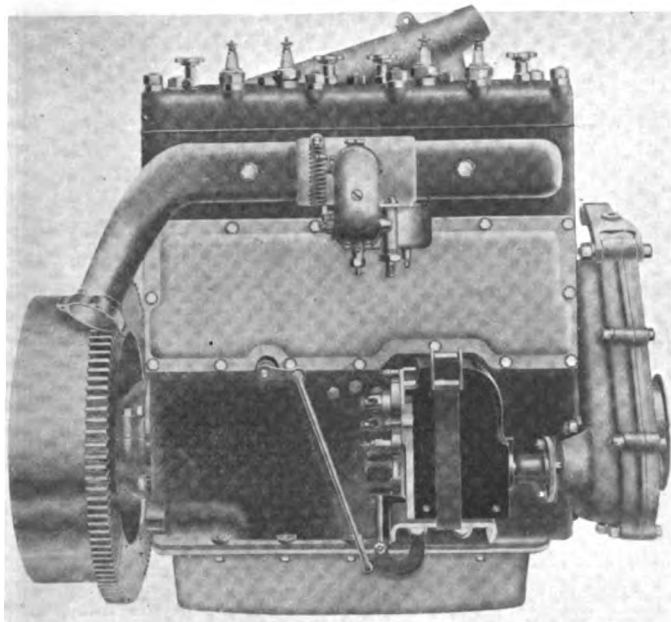
Compactness of design is notable in the gearset, which has one very inter-



The Overland model 75 chassis is tapered and strongly braced; simplicity is a cardinal feature



The cantilever rear springs are below the frame and are shackled both front and rear



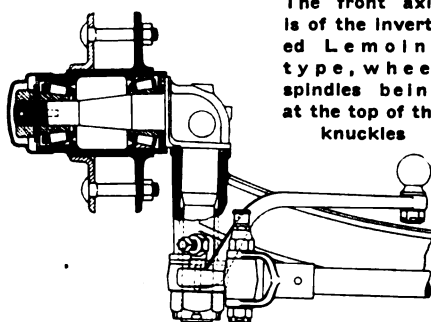
The Overland model 75 motor is a compact block casting with intake and exhaust passages cored in the block; the camshaft is operated through a roller chain in oil and every unit is instantly accessible

esting feature. The three countershaft gears are forged in one piece. This forging is made with a hollow center and there are two Hyatt roller bearings between it and a shaft, which is fixed in the gearset housing. Thus, instead of attaching three separate gears to a shaft and then allowing the shaft to revolve in bearings at either end, the shaft is stationary and the gears run on it.

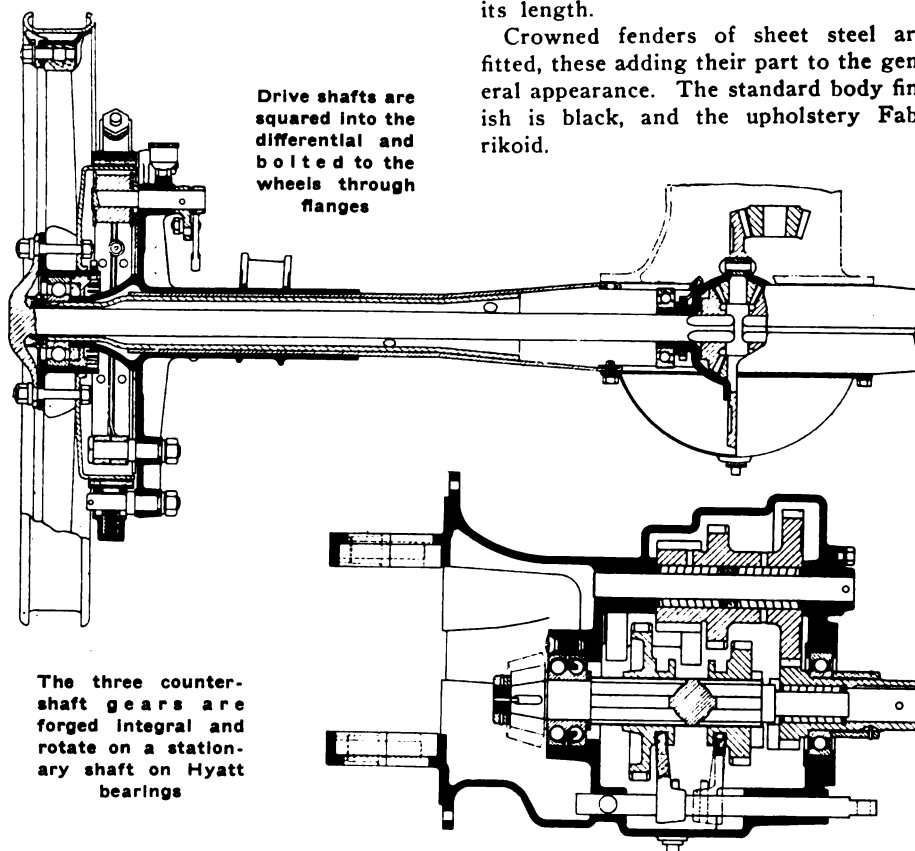
The rear axle has a pressed-steel housing and there are no truss rods or other braces. The bottom and top of the housing are ribbed on the outside to take care of bracing. Ball bearings are used and the design is what is termed a one-bearing floating type. The entire weight of the car is borne by the housing, the axle shafts taking none of it. The axle shafts, which are squared into the differential, have driving flanges integrally forged and these bolt to the wheels. Thus the shafts can be withdrawn entirely without disturbing the wheels. Ample provision is taken against oil leakage out of the axle by felt washers at proper points.

Front axle design is entirely new to Overland cars. It is of the type known as the inverted Lemoine construction, whereby the wheel spindles are suspended from the top of the steering knuckles instead of from a point between the arms of a yoke, as in the more conventional design. There is no yoke support for the knuckles, simply a single support on the end of the I beam. The design simplifies the forging and makes a nearly straight axle. It allows the car weight to be low in relation to the wheel bearings, assisting the steering.

Mounted directly under the side members of the frame, the rear springs are full cantilevers, 42 x 2 in. They are trunnioned at the center and shackled at front and rear. The rear support is



The front axle is of the inverted Lemoine type, wheel spindles being at the top of the knuckles



Drive shafts are squared into the differential and bolted to the wheels through flanges

The three countershaft gears are forged integral and rotate on a stationary shaft on Hyatt bearings

below the axle housing, serving to bring the suspension low.

A straight taper from front to rear is given the frame. It is simple in form, there being a cross member at the front and another three-quarters back. No cross piece is used at the rear, this not being needed in addition to the member just a little forward. This member is located at the point where the cantilever springs attach to the frame, strengthening it where support is needed. The taper of the side rails is such that the body is given good support throughout its length.

Crowned fenders of sheet steel are fitted, these adding their part to the general appearance. The standard body finish is black, and the upholstery Fabrikoid.

It's a Great Year for "Lemons"

So Say the Dealers and Distributers of the Northwest—Car Shortage the Cause

By Ray W. Sherman

MINNEAPOLIS, November 11— "It's a great year for 'lemons' in the Northwest," said one of the distributers of this city. "They've sold a lot of 'em."

The distributer wasn't talking about fruit. He was talking about cars, and from his explanation it seems that there is a class and variety of car which in this territory carries the opprobrious designation of "lemon."

A lemon car is hard to define. Generally speaking, it is a car the purchase of which may cause regret on the part of the buyer. It doesn't necessarily follow that it is a car of which the annual production is small or that it is a car whose price is low. Also, it is hardly possible to get any two men to make up a list of "lemons" and have the two lists the same. There probably are cars that would appear on all lists and there are others which would not appear so often.

One class of car that might be termed a lemon is that car whose manufacturer secures a building, assembles parts and puts out his product. The manufacturer is unknown, his financial standing is poor, and very often he does not last long. After he "busts," the cars he has put out are "orphans" and their owners have a hard time finding a "father" to furnish them parts. Often the parts must be made to order in a machine shop—and that costs money.

Hard to Define

Then, there are the cars of unusually low price. Some of them are good, excellent. They have been well put together, even if the finest of leather was not used in the upholstery, and are serviceable little vehicles. There are a number of this kind, but there are also some others that the other dealers place in the citrus class.

In the higher-priced and medium class there is now and then a car which cannot compare as to quality and serviceability with other cars of the same price. But the best classification of "lemons" probably would be that obtained a year from now by a canvass of the car owners of the territory.

Also, there are cars which have been "lemons" in past years but whose manufacturers, profiting by experience and previous errors, have pulled the product to a higher level and are now putting out an excellent vehicle. The mis-step of a fairly good manufacturer may produce a car which for one season is a "lemon."

But to get back to the distributer and

This is the eighth of a series of stories on the Northwest by Ray W. Sherman. The ninth will appear in an early issue.—Ed.

his "big year for 'lemons.'" The big year, he stated, has been caused by the shortage in cars. As was told in Motor World September 29, the dealers and distributers of the Northwest have far from enough cars to supply the demand, and to supply this demand, he stated, there must be cars of some kind.

Farmers drive into town with the intention of driving home a car. Their first choice generally is a car in which the farmer has confidence, so he tries to buy one. Often he can't get one, so he shops around. Sometimes he can find one of the good but less known cars, but in other cases he happens onto one of the "lemons." He may buy it because of his desire to have a car of some kind or he may buy because of the skilled work of a salesman. But, anyway, he buys, and that adds one to the sale of the "lemons."

Away out through the country the demand for cars is as great as if not greater than the demand in and near the cities, and sometimes a dealer out in the territory will get a shipment of "lemons" to make the sales that he would otherwise lose, for his buyers are determined to have cars of some kind. This undoubtedly reacts upon the dealer, and a dealer who thinks for the future will not do it, but it may be that the dealer himself is deceived as to the status of the car and picks a "lemon" in the garden of cars.

There is in Minneapolis a dealer—or distributor—who could get no cars from his factory. He was determined not to let the business slip by, so he went to a small assembling factory that no one, not even the distributor himself, knew much about and contracted for a shipment of cars. He put up money on the order, and before he eventually succeeded in getting it back had a most interesting and instructive experience.

That is the why and what of the "lemon" business as it is explained not only by this one distributor but by numerous others. It has been a big year for "lemons." It is just the same as in Pullman cars; an upper berth is a "lemon," but when there are no lowers a man can't wait for the next train. He must have a berth.

Scarcity the Cause

As to the dealers in "lemons," they are not as a rule men who have gone into the agency with the intention or desire of filching the public. They generally are men who are desirous of getting into the trade and to do this are obliged to take what they can get. It is the same as the distributor and curbstoner dealers. If he can't get a regular dealer and if he feels that he must be represented in a certain section he may pick a curbstoner.

It all harks back to the advice that has been a standing order since the trade was young; the dealer who would build for the future and who would establish a reputation should be careful what he hooks up with. He may make his reputation by making good to his customers on a "lemon," but it is an expensive reputation.

Many of the makers of "lemons" are men who have been attracted to the industry by its glamor of sometimes Ford-like profits. They want a piece. Sometimes they get it—and if they do, somebody gets the "lemons."

You ask: "Who are the lemons?" Accurate data will be obtainable one year from above date.

Home of the Signal Truck in Spokane, Wash.



This is the building in Spokane, Wash., occupied by the Signal Truck Co., distributor of the commercial car of that name

Each Garage Must Have an On-the-job Man

He Should Specialize in Attention to Customers and Should
Boost the Business Toward Success

By Ray W. Sherman

"OH HARVEY! H-a-r-v-e-y-y!" Reilly yelled lustily from the front-center of Harvey Burt's garage. Then he listened. The most he heard was the tap tap tap of a hammer in the shop at the far rear behind a partition.

"Oh H-a-a-a-r-v-e-y!" he called again.

This time the man with the hammer emerged from the shop door.

"Burt's out," he announced.

Reilly was just about to inquire as to where and why and when he would be back when a motor whirled at the curb and Burt in his car rolled in the door. Harvey placed the car in its space and went to the office.

The Boys Run Things

"Who runs the place when you're out?" demanded Reilly.

"Why—uh—the boys in the shop sort of take care of things," was the garage-man's apologetic answer.

"Some care takers!" replied Reilly.

"Why?"

"I yelled my head off trying to find somebody," explained the car dealer. "There was no one in the office and I couldn't see any one in the garage."

"Well, I don't go out very much and when I do there really isn't any one to stay by the office. The stenographer comes in two hours in the afternoon and cleans up the office work, and when she's here she takes care of things."

"You ought to have some one here all the time," advised Reilly. "The repairmen can't stay in the office."

"I know it—but, you see—I haven't felt that I could put a man in here. I don't think the business would stand the expense," confessed the garageman.

"I have my doubts as to the correct-



"Oh H-a-a-a-r-v-e-e-e-y!"

ness of your attitude," asserted Reilly thoughtfully. "I believe an expense of this kind would prove to be a good investment. I know I have found it so."

"You! Who'd you hire for that job?" Burt could not recall any such arrangement in the establishment of C. J. Reilly, Inc.

Thought Help an Expense

"You don't remember, Harvey, when I started in business. I don't think we were acquainted then. But I started in alone to sell cars, and, of course, wanted to keep expenses down as low as possible. I couldn't see my way clear to hiring any extra help. Extra help to me meant just that much extra expense. It looked like money thrown away."

"I had to get outside quite a lot in those days, and when I was absent from the salesroom the only man about was

the man I had engaged to do my repair work. I didn't even have a stenographer. I typed all my own letters. I had to keep down expenses—and I did."

"Yes?"

"But one day I discovered that while I was outside hunting up business I was losing considerable business by having no one about the place to take care of the people who came in. I don't know how many sales I lost by not having some one around to meet people and find out in an intelligent way what they wanted—I don't suppose I lost many, for I wasn't making many sales then. I had just started."

Started Figuring

"But one day I sat down and got into a figuring fit, and I figured what an office girl would cost me. If I could get her for eight dollars a week that would be four hundred and sixteen dollars a year, and if she was the means of selling only one car I would make five hundred dollars. That was a profit of eighty-four dollars, or twenty per cent on the investment. It looked good to me."

"Of course, it took some thinking to convince myself that this salary was an investment and not an expense, but I finally decided I was sport enough to take the chance, and I hired the girl."

"Nellie?"

"Yes, Nellie. She had just come from business college then and needed some training in the business, but she took to it like a duck to water. I even taught her to sell cars, and she was an apt pupil. She's as good as any of them today. She has practically made several sales."

"But about that first year?" asked Harvey.



"Get this cost idea out of your head! Look upon it as an investment! Get over seeing this weekly salary as money going out the door and try to see it as a possible percentage of earnings coming in!"

"Oh, yes. That first year. Well, I never was able to know whether having the girl in the office made a single sale or not. But I do know that the business seemed to run better and I did enough so I could afford to pay her salary and not feel pinched. She's been one of the best investments I ever had; with me eight years this fall."

Harvey grew thoughtful. "Do you really mean that I ought to hire an extra man—or a girl—to run this office?"

"I certainly do!" asserted the dealer. "Your business is plenty big enough to stand it, and it needs it. You have a lot of customers who store with you and you have an accessory department that ought to be bringing in some business. You have swiped enough display ideas from Joe Keyes to make the department look well, but what good does it do to display the stuff if there is no one here on the job to sell it."

The Unfulfilled Desire

"That is like advertising without distribution. You create a desire and then fail to fill it. I would suggest that you get some young fellow who can do stenographic and office work and who has some common sense and sales ability and work him in here. The time may come when you will have to pay him a good salary, but if he is worth it you should worry. You don't always want to keep your nose to the grindstone. You want to get this business running so you can go around the block without having it stop. As it stands now you are the whole works. You boss the repairshop, run the office, sell the accessories and try to be everything all rolled into one. You may be able to do it after a fashion, but I don't think it's a good plan."

"I know a garageman, Harvey, who hired a young fellow to do nothing but stick around the front of the garage, meet customers and sell goods. He sells accessories, tires, gasoline, oil and anything else a motorist is likely to need but might not think of until he had left the garage. This man is one of the best investments the garageman ever made. He says so himself. And the man gets a good salary, too."

Hunt for the Man

"Where would I get such a man?"

"Oh, I don't know," answered Reilly. "You'll have to look around. You might get such a lad from a business college, or you may be able to pick him up around town. Maybe he wouldn't need to be a stenographer. Perhaps you could make other arrangements for your stenographic work. But I do think you should have this office man. I also think he should have some business training; perhaps he could do a lot toward keeping your books."

"To be frank with you, Reilly, I've felt the need of some one here for some

time. The only thing has been the cost—"

"Forget the cost!" exclaimed Reilly. "Get this cost idea out of your head. Look upon it as an investment. Get over seeing that weekly salary as money going out the door and try to see it as a possible percentage of earnings coming in the door. The salary is an investment, not an expense, when you get right down to a correct analysis."

"If this man can boost your accessory sales he has earned you money. If he gives greater satisfaction to your customers he is helping your business. If he helps put the business on a better business basis you can't afford to be without

him. I tell you, Harvey, it's worth trying."

"I think I'll do it," added Harvey. "I'd get a girl and make an all-around man out of her, but gol darn 'em, Reilly, they keep getting married on you!"

"There is just a germ of truth in that," replied Reilly, not at all cheerfully. "I think I'm going to lose Nellie."

Will You Answer a Question, Please? It's on Page 5

Maybe These Would Help Move Your Used Cars

BE UP TO DATE.
Making a favorable impression may not appear especially to be capital but for the salesman it is a mighty thing and terms will keep you looking for a car. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

YES, WE'RE IT!
But we have taken a "Studebaker" at \$150, a touring car, dressed in a paint shop, for such a car and it is a grand cheap for \$100. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

YES, WE'VE GOT IT.
"Tie said Ford will shorten his cars, so as to accommodate more of them on the road, but we have one of the long kind, a touring car, at \$200. Come soon; it won't stay long. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

IT'S REMARKABLE
and only by chance that you have the opportunity to purchase a "Studebaker" touring car, newly painted and new top, at \$250. True, it does not have an electric starter, but the "Armstrong" starter answers the purpose. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

NOT A GAMBLE.
Life is a gamble—valued between the cost and the value of the car. Buy the car that is a sure thing. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

FAMILY DIVIDED
Our "Cartercar" family is hopelessly broken up. Only one little chap left. No immediate relatives left to console it. And, as it does not keep on well with its kind, it's a real bargain. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

MR. GROCERYMAN!
Have you been in to see that cute little "Studebaker" delivery car for quick service? It really looks like \$200, but just call in our price. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

YOU WILL, I AM SURE.
I find myself in the position of a "Studebaker" touring car. I run on sale by my "Studebaker" well and feel well and stop matter at just more for \$200. You could not expect more. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

LOOKS GOOD TO US.
There's a young Oakland touring car and its twin brother on our salesroom floor. They certainly look good to us. Just find out how close to \$200 you can get a car of this grade and you'll appreciate what a bargain we have to offer. They have always lived together but will stand separation. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

Don't You Remember
how hubby refused to buy you an electric car at \$200? Well, you won't want his sentence now. Come, fresh from the paint shop, for \$200. One look and you'll fall in love with it. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

THE DAY IN THE COUNTRY
In a comfortable Studebaker touring car, with top down, you can enjoy the day in the country. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

BE LIEVE ME
many otherwise good ads have been ruined by being long drawn out and not to the point. How's this? A Studebaker, style touring, owner desires immediate sale; will accept first \$150 either by mail or messenger. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

WITHOUT EXCEPTION
the breath of suspicion is even too strong for clove. You need not be suspicious of our Studebaker touring car condition fine, car you will be proud to own. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

LIVE ADVERTISING
He that underlines something which he puts in his ad, underlines his skin. He that underlines his ad, underlines his skin. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

BE UP TO DATE.
Making a favorable impression may not appear especially to be capital but for the salesman it is a mighty thing and terms will keep you looking for a car. A. W. HAILE MOTOR CO., 1015 Main Street, Used Car Dept.

These brief ads were run with frequency in Buffalo newspapers by the A. W. Haile Motor Co., Buffalo, N. Y. The copy is worth study. Each ad covers one car only; there is no variety to confuse the reader; and the story is short and punchy. The catchy headlines are a feature. The series is handled by Sales Manager Ralph E. Brown. The plan is worth the consideration of any dealer who is anxious to find a plan for moving used cars

Repairing and Adjusting

Eliminating Noise in Brake Connections

Obviously the best way to eliminate noise in brake rods is to remove the lost motion either by rebushing the parts or putting in new parts.

be effected by using coil springs to hold the parts so that they will not rattle, in much the same way that they might be held by hand to stop rattling temporarily. Different methods of spring application are shown in Figs. 1 and 2.

In the former, small holes are drilled in the arm and the rod, and a heavy coil spring inserted. Enough tension is applied to hold the parts tight no matter how severely they are shaken. Fig. 2 is somewhat simpler, a coil spring merely being placed between each pair of rods.

—Diuguid Bros., Brooklyn, N. Y.

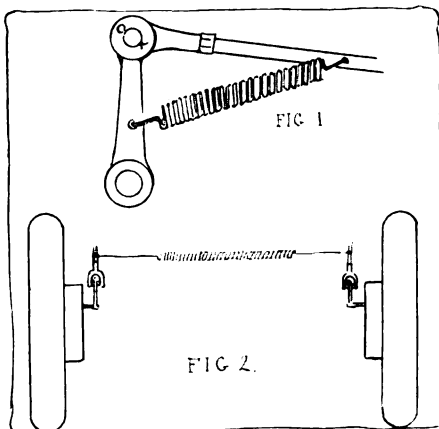


Fig. 1—Upper—Method of attaching spring to hold parts so that they will not rattle. Fig. 2—Another way of accomplishing the same result

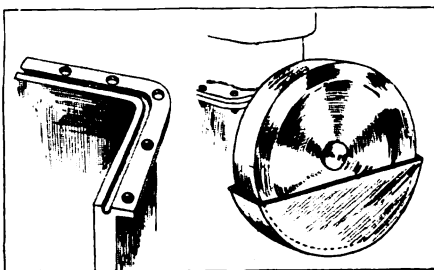


Fig. 3—Left—Groove cut in flange to prevent oil leakage. Fig. 4—Tight-fitting case to prevent flywheel throwing oil

from the vertical and consequently when the explosion occurs the thrust due to this inclination produces a knock which is often very difficult to locate.—D. & P. Auto Repair Co., New York.

Snug Flywheel Guard Stops Oil-throwing

The usual method of preventing the spattering of oil by the flywheel is to place a guard over the top of it, but even with this a certain amount of oil will be thrown. An improvement on this scheme is claimed by one man who advocates placing a trough under the flywheel, Fig. 4, so that the flywheel is kept out of contact with the oil and grease in the bottom of the pan. This also has the advantage that it does not cover up the timing marks on the flywheel, and if the trough is made a snug fit there will not be room enough to allow any parts to drop in it.

Leakage of oil or grease through the two halves of the crankcase or gearcase may be prevented by cutting a 3/16 groove, either by hand or milling cutter,

in the upper flange, care being taken that the groove does not enter any of the bolt holes. This groove should be filled with a 1/4-inch felt wick, Fig. 3.

Use of Surface Gauge for Truing Bearings

If a motor is to be reassembled, after the bearings have been scraped, with the certainty that no knocks will develop, proper attention must be given to truing the bearings.

If a connecting rod is bent or twisted, or the bearings are not parallel, when the piston is put back and the motor reassembled a knock is likely to develop and certainly the piston will wear on the two edges that bear the greatest pressure.

The same effect may be the result of the crankshaft not being parallel with the top of the crankcase, yet this is not noticeable unless looked for, Fig. 5. All the bearings may be in line as shown by the scraping, yet the bearing at one end may be lower than at the other. Furthermore, if the crankshaft is sprung the bearings may seem to be in line when they are not. To avoid these troubles which cause knocks, and wear the cylinders, and may even break the crankshaft, both connecting rods and crankshaft must be inspected.

VALVE COMPOUND EASILY MADE

Valve grinding compound may be made by mixing grease and an abrasive such as emery or carborundum thoroughly. It is necessary to make the compound perfectly homogeneous. It would be well to melt the grease in order that the mixing might be better done. Different grades of compound can be made as desired, varying in coarseness or fineness according to the character of the abrasive powder used.

Mysterious Motor Knock

A car was brought into a garage one day with a bad knock in it; the noise was due to a loose timing gearcase cover, which formed the front support of the motor.—G. Strahan, Yonkers, N. Y.

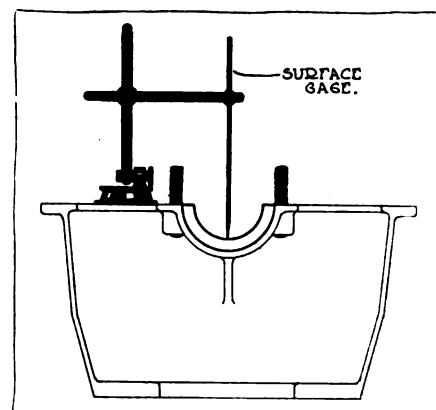


Fig. 5—Truing bearings by surface gauge

HOUSE BATTERIES WITH CARE

Even at this late date there are some who do not appreciate the importance of properly housing and protecting dry cells on the car, and the following is a good illustration of this: Two sets of dry cells were exhausted in as many days, and yet there seemed to be no reason for it. There were no short circuits in the wiring, and the car had been used very little. Finally the trouble was located, however. The cells had been carelessly placed under a rear seat and one of the strips of iron that reinforce the upholstery had produced a short.—George Strahan, Brown's Garage, Yonkers, N. Y.

HIGH COMPRESSION TROUBLE

When a motor knocks the same as if the spark were too far advanced it may be that the compression is too high. Occasionally this will be found to be the trouble even in these days of precise manufacture. The remedy is to place a gasket of sufficient thickness between cylinders and crankcase.—D. & P. Auto Repair Co., New York.

LENGTHWISE PISTON SLAP*

Usually a piston slap is considered to be the hitting of the side of the piston against the cylinder wall due to the side thrust of the connecting rod, but it should not be forgotten that a piston may develop a longitudinal slap due to the connecting rod being bent or its bearings out of true. It sometimes happens that when the connecting rod end is scraped the bearing surface will not be quite parallel with the wristpin, with the result that the rod is inclined a little

WIDE-AWAKE MERCHANDISING

PUT SMILE-MAN ON SALES FLOOR

When Customer Comes in What Greeting Does He Get?

Visiting scores of salesrooms and garages serves only to emphasize a regrettable condition in the retail end of the motor car industry. It is the lack of attention to persons who walk in the door. In some of the factory branches and in a few dealers' salesrooms in the larger cities there are liveried boys at the door to open it, and prompt attention and a friendly greeting are accorded the entrant.

In the other places a man—or woman—may walk in and shift for himself. If attention is given it is not unlikely to be a brisk—almost gruff—question from a salesman who pauses just long enough to ask what is wanted; instead he should convey the impression that himself and his time are entirely at the disposal of the entrant. It is such a little thing to do and costs nothing except the exercise of the courtesy that is born in the real salesman.

TEACH SHELF DISPLAY

Show the clerk how to arrange goods on shelves, counters, and tables so they will make the best display. Give each clerk a certain section of the store to trim, and make him responsible for the way goods are displayed and kept. Training your clerks will help them to be good salesmen and accurate business men; to take more interest in your business and feel more responsible for its success.

CEASE DICKERING

"One of the greatest difficulties in connection with the trading in of used cars," says Glenn A. Tisdale, Franklin Motor Car Co., New York, "is the great amount of dickering concerning the price of the old car. It is hard to convince the prospect that a certain price is the lowest, and often the trouble lies with the salesman.

He will make a tentative price that is too high, or, if the prospect objects

to the final figure set, the salesman will strive to have it raised. All this gives the prospect the impression that there is no rock-bottom price but that the dickering is just a plan to obtain the car at a ridiculously low value. It is better to name the lowest price at the outset and stick firmly to it."

TEACH DEPARTMENT

Many times your business is judged by the conduct of your clerks. Show them how their actions outside of, as well as in, the store affect your business, their positions and futures. Many a good clerk has been ruined by getting into bad company and developing habits his salary could not afford.

RECORD THE NUMBERS

The serial numbers of all the parts about the car should be recorded by the dealer when the car is delivered. This applies to such things as the battery, the voltage regulator, the starting motor and generator, the carburetor, and the magneto.

These records are merely a matter of self-protection. For example, an owner received a brand new car, and 2 weeks later the battery gave out so completely that a new one was required. However, examination of the serial number showed that this was not the original battery but one that had been put in its place by a chauffeur who had the same make of car in the garage. Had it not been for the record the dealer had he would have been obliged to furnish a new storage battery.

READ PAGE 5!

You may have good customers and well-trained clerks, but without a proper system of handling your cash and records, you cannot get the utmost profit from your business.

Many merchants have the mistaken idea that a good system is expensive, requires a great deal of detail work, and a knowledge of bookkeeping. This is not true. The more practical the system the more simple it is, and the less detail work necessary. A good system will save enough money in a short time to more than pay for itself. It is an investment, not an expense.

FOLLOW THEM UP! DON'T LET 'EM DIE

Live Prospects No Good Unless Kept in Live Condition

The live prospect left the salesroom with a convincing promise that he would be back in a few days to take a final look at the little six. The days passed, but the prospect did not return, yet the salesman was afraid to leave the store to call on him for fear he would miss more live ones.

He was one of those who figured that several birds in the bush are better than one in the hand. Instead of going out and clinching the sale, and getting his commission, he would rather hang around and add new names to his prospect list.

Finally he got real anxious about what the live prospect was doing, but the omnipresent fear that he would miss more live ones prevented him from going to see him, so he compromised by calling him up. The live prospect, however, was not convinced with the phone conversation because it lacked personality, and he went out and bought a big six of another make.

Moral—Keep hustling—a bird in the hand is worth two in the bush.

DO YOU WANT TO BORROW MONEY?

If you do you must be able to show the banker a statement of your business for the last 6 months or a year. Can you do it? If you have a proper accounting system you can, and if you haven't a good system you should have one. Motor World has perfected one. Page 5 will tell you about it. You will find the story of value to you. It may govern your whole future.

TEACH CAREFULNESS

Teach your clerks to be careful in all things. Not to handle stock carelessly. Not to forget to make proper records of cash sales, goods sold on credit, money paid on account, and money paid out. Show them how to properly wrap parcels and handle stock without waste.

Put His Service in Three Classes

Each Has Definite Price and Defines What Is to Be Done

The monthly inspection of new cars has done so much toward the elimination of trouble that it is not surprising to see the idea extended to include all ages as well as all makes of cars and trucks. The Holle Motor Service Co., Newark, N. J., has been doing just this for several months. It was organized solely for this purpose and it is said that there is a big demand for systematic inspection service.

However, the work done includes not only inspection, but all other kinds of service, the charge being according to the value of the work done. There are three classes of contracts, A, B and C.

The A Contract

The A contract provides for inspection, adjustment and greasing, but not replacement of parts. The cost varies from \$5 to \$7.50 per month, depending on the size of the car. The work includes the adjustment of all bearings, greasing and oiling all parts of the car, and the adjustment of carbureter, magneto, cut-out, etc. In addition, any necessary cleaning, such as washing down the engine, is done.

The class B contract allows a man to run his car in once a week for inspection and includes all maintenance work on the car outside of the buying of parts replaced. The charge varies according to age and horsepower of the car. For less than 22 horsepower a car in its second year would be charged \$10 per month, and over 50 horsepower the charge would be \$25. The third, fourth and fifth years an additional charge of \$2.50, \$5 and \$7.50 is made per month.

Guards Against Loss

It should be noted that all overhauling work is covered by the terms of this contract, but the monthly rate has been so fixed in each case that at the end of the year the company will have a profit. This contract cannot be signed for less than a year and each new customer is investigated as to his business integrity. In this way the company is protected against the unscrupulous man who might otherwise sign a contract and have his car, badly in need of repair, overhauled for the payment of only one month's fee.

Class C contracts have to do entirely with commercial work and there is no scale of prices, but a special figure is made for each truck taken charge of. It is said that there is a big field for expansion here, as there are many concerns operating a few trucks that have not proper facilities for keeping their

This is a Class C contract, which covers commercial vehicles. It states definitely what the truck owner is to receive and what he is to pay. In this case the service is complete and costs \$25 a month. It enables the truck owner to know what his monthly costs are to be and assures the repairman of a certain income

trucks in good condition and running a maximum percentage of the time.

Every time an inspection is made, whether it is under an A, B or C contract, a written report is sent to the owner of the car or truck, thus giving him a check on his chauffeur.

TEACH MANNERS

Talk to your clerks about manners. Teach them the value of politeness. Impress on them that courteous, polite clerks attract trade. Show your clerks how to wait on customers. Tell them how customers are lost by inattention. Accommodating clerks mean much to the success of any business.

DON'T BE ANXIOUS

Remember that when fixing the sale price of a used car it is usually better to be indifferent than anxious about putting through the deal. Name your rock-bottom price for the trade-in and stick to it. Do not appear too anxious to sell and the prospect will be convinced that the price is a fair one.

Ten Years from Today

Page 5

AGREEMENT

No. 54

THE HOLLE MOTOR SERVICE COMPANY

hereby agrees, that in consideration of the sum of

Twenty-five dollars.

payable the first of each month to furnish the following

service Complete maintenance
including overhauling, adjust-
ing and greasing

to R. J. Ward of Bloomfield N. J.

on his Mais automobile Number 7734.

This agreement entered into the Nov 4 day of

1915 between the above named company

and R. J. Ward

Signed _____ party of the first part.

Signed _____ " " " 2nd "

PERSONALITY IS WORTH STUDYING

**Make Salesman Fit the Buyer
—Results Will Be Better**

Since it is human nature for a man to like some people instinctively, and to dislike others, the salesman should constantly bear this point in mind. If he finds he is not making progress with a prospect, he should allow one of the other salesmen to try his hand. It may be that he rubs the prospect the wrong way while the other salesman may have a personality that will attract this particular prospect; yet next time the tables may be reversed.

Sales managers should be constantly on the watch for cases where it is apparent that the salesman does not have the personality to appeal to a certain prospect; although the salesman may object, it is better to give the prospect to another salesman than to lose a sale.

ARE YOU TRAINED?

Trained clerks sell more goods, satisfy more customers, make fewer mistakes, and help increase trade and profits.

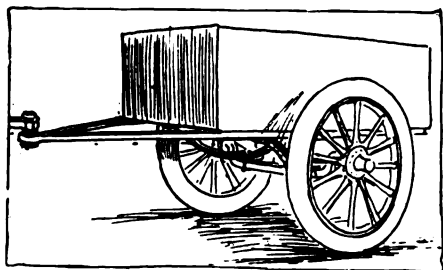
REPAIRSHOP SHORT-CUTS

*From the **MOTOR WORLD** Road Man*

Trailer for Hacking

(No. 329)

Many odd dollars can be picked up by using a trailer in connection with a hacking car. For example, trunks and freight may be brought from the station in it, and when a family is moved from a nearby summer resort back to town or vice versa, they may be moved bag and baggage, literally. There are a thousand and one uses for it, since it takes the place of a small truck or delivery car.



(No. 329)

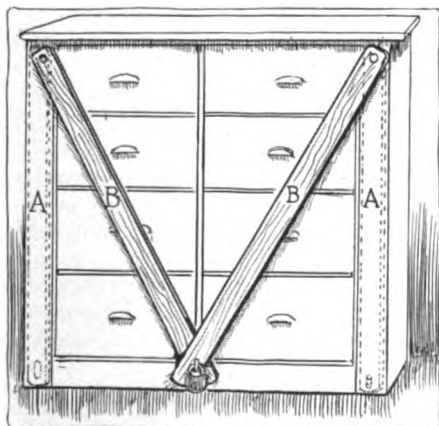
Put trunks in a trailer when hacking

A satisfactory trailer may be made out of old car parts. A chain-drive rear axle and springs make an excellent running gear and on it may be built a wooden box body. The trailer is drawn through two steel members which also form a frame for the body.—A. P. Heyer, Montclair, N. J.

Locking Tool Drawers

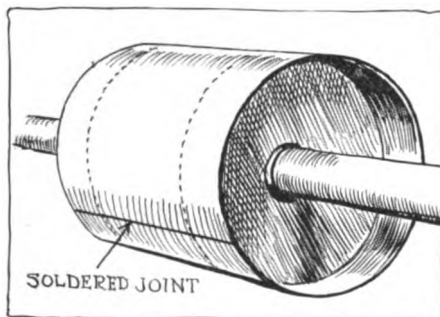
(No. 330)

Locking a double tier of drawers may easily be accomplished by arranging wooden bars at the outside of the tiers, the bars to hang free of the drawers when not locked. Locking is effected by bringing the swinging bars together at the bottom and fastening the ends with a padlock.—John Johnseth, Lyons & Co., Grand Forks, N. D.



(No. 330)

A double tier of drawers easily locked



(No. 331)

Galvanized iron will widen a pulley

Widening a Pulley

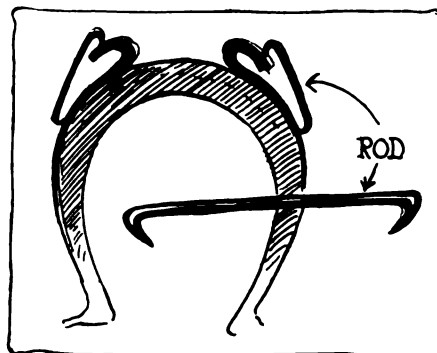
(No. 331)

In case a 2-in. pulley is not wide enough it can be made twice as wide by fastening a galvanized iron band around the outside. The band is soldered at the joint.—H. W. Haller, Heller Bros., Fergus Falls, Minn.

Tire Repair Hooks

(No. 332)

When the surface of a tire tread has been cut back for repair the strips of tread may be held back out of the way by simple iron rods with the ends bent into hooks and sharpened. The holes made by the hooks are small and do no harm. Driving a punch through the strips to hold them necessitates that the holes be repaired.—Valley City Tire Repair Co., B. H. Sullivan, Valley City, N. D.



(No. 332)

Home-made hooks for tire repairs

Keeping Water Out

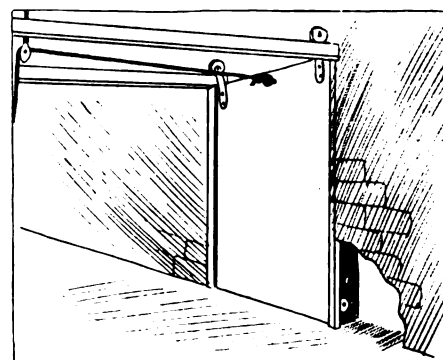
(No. 333)

To keep water from the wash rack from running outside the washing space and, at the same time, not to render the rack inaccessible, a 4-in. hump, about 12 or 14 in. wide, of concrete, may be built around the rack. This retains the water and still cars roll over it easily.—Fergus Auto Co., Fergus Falls, Minn.

An Elevating Door

(No. 334)

The door shown herewith slides back out of the way. The top part runs on horizontal rails and the bottom part on vertical rails. Two small cast iron wheels running on wooden rails may be used for the horizontal track and the vertical rails may be made out of pairs of small vertical angle irons placed back to back and with the rollers operating between them.



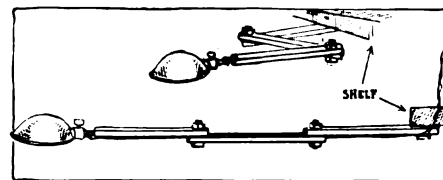
(No. 333)

This garage door slides out of the way along horizontal and vertical tracks

Extension Bench Lamp

(No. 335)

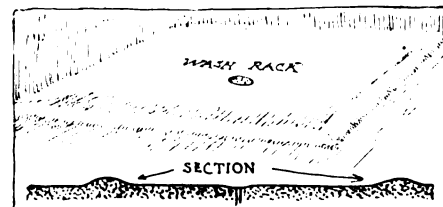
A lamp bracket for bench work may be made of flat sections of planed wood,



(No. 334)

An extension lamp will cover the bench

each section about 12 or 15 in. long, 2 in. wide and less than 1 in. thick. At each joint is a single bolt, and the lamp wires are carried between the bracket.—John Johnseth, Lyons & Co., Grand Forks, N. D.

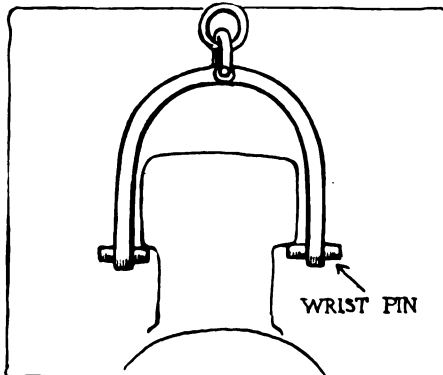


(No. 335)

A dam can be put around the washstand to keep the water in

Ford Motor Lifter (No. 336)

To lift Ford motors from the chassis, build a U-shaped piece from flat bar stock with holes at the ends of the U for insertion of an old wrist pin, one in

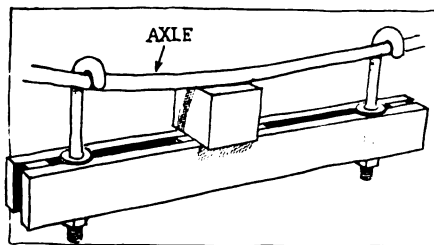


(No. 336)
Lifting yoke for Ford motors

each side. The ends of the U should just clear the top of the motor and the inside ends of the pins should be roughened slightly to afford gripping qualities. The U piece has a ring for a chain hoist.—Frank Campbell, Ten Voorde Garage, St. Cloud, Minn.

Axle Straightener (No. 337)

An axle straightener, especially for Fords, may be made thus: Take two pieces of flat bar stock, about $\frac{3}{4}$ x $2\frac{1}{2}$ in.,

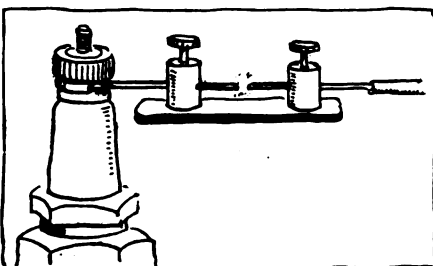


(No. 337)
Straightening device for Ford axles

and bolt together at the ends with small blocks between. In the center insert a projecting block for pressure against the center of the bent axle. At the ends insert between the flat bars 1-in. or $1\frac{1}{4}$ -in. threaded rods with hooked ends. These hooks are hooked over the axle and the turning of the nuts pulls the axle straight.—Ben Plantenberg, Ten Voorde Garage, St. Cloud, Minn.

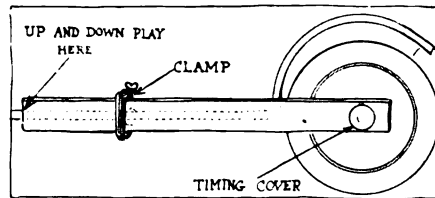
Ignition Tester (No. 338)

To find which cylinder is missing, a piece of fiber $\frac{3}{4}$ in. long, about $\frac{1}{8}$ in.



(No. 338)
Spark gap for finding ignition trouble

thick and $\frac{3}{4}$ -in. wide is taken, and near the ends are inserted cable terminal posts. Through each post is passed a copper wire, the ends at the center being adjustable through lateral movement of the wires. One of the wires has a loop

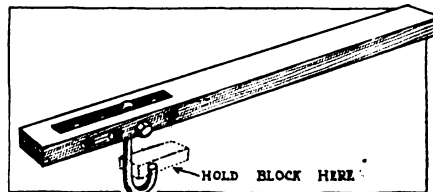


(No. 339)
Holding on wheel with broken shaft

at the end for attachment to a plug. The ignition cable is attached to the other post. With one of these on each plug and the wires at a varying gap, it is possible, especially in a dim light or darkness, to see the action of the plugs.—E. P. Barrett, Avery & Hurrell, St. Cloud, Minn.

Rear Wheel Holder (No. 339)

To hold on the rear wheel of a Ford when the rear axle shaft has broken on the road and it is desired to tow the car in, affix an old Ford timer cover in the

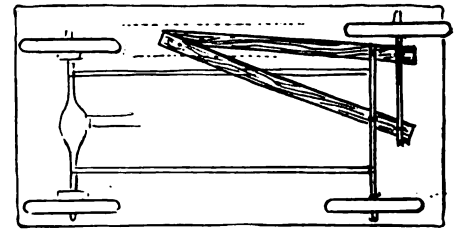


(No. 340)
Device for straightening fenders

end of a piece of 1-in. board, the cover to fit over the hub. The board is fastened to the running board by placing a clamp about 2 or 3 ft. from the end of the piece of board. This allows a sufficient up-and-down play.—Ben Plantenberg, Ten Voorde Garage, St. Cloud, Minn.

Fender Straightener (No. 340)

To make a fender straightener, take a board 4 ft. long and arrange an iron hook in a slot at the end, with holes and a bolt for adjustment. Fenders can be straightened by lifting or prying.—Ben Plantenberg, Ten Voorde Garage, St. Cloud, Minn.



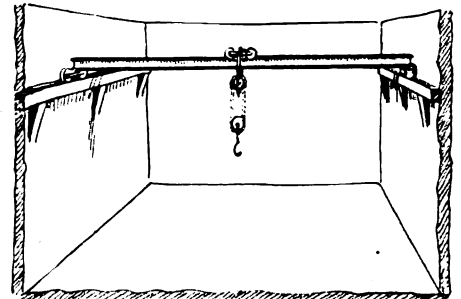
(No. 341)
Temporary support for front wheel

Wheel Support (No. 341)

To rescue a Ford when the front axle has broken off near the hub, two boards are made into a long V. Near the spread ends of the V are two rod clamps for hooking onto the axle. Further out on the V is a shaft for a Ford front wheel. The small end of the V is hitched to the running board. The front wheel runs out of the track, of course, but it runs, and that is what is desired.—Frank Campbell, Ten Voorde Garage, St. Cloud, Minn.

Traveling Crane (No. 342)

In erecting a repairshop there should be built in at each side at intervals of 6 or 8 ft. piers which may taper in to nothing half way down the wall, but should be about 4 x 6 in. at the top. On these may be laid 4 x 6 timbers



(No. 342)
Simple traveling crane for the shop

with a track for carrying an I-beam crane, which I-beam carries a traveling member. This gives an economically constructed crane which will reach all parts of the shop. If the piers are not put in when the wall is built the construction later is difficult and more costly.—E. P. Barrett, Avery & Hurrell, St. Cloud, Minn.

Want to See Your Name in Print?

Here are some more of the pet ideas of garagemen and repairshop operators. Good, are they not?

But haven't you an idea buried away somewhere that is better than any of those shown here? Haven't you done some little thing in an original way—a way that has cut out some worry and saved you some time?

If you have—and what garageman or repairman hasn't—why don't you tell us about it?

Never mind about literary style. Just send it along. Make a rough pencil sketch, write a few lines about it and send it in.

A postal card will do.

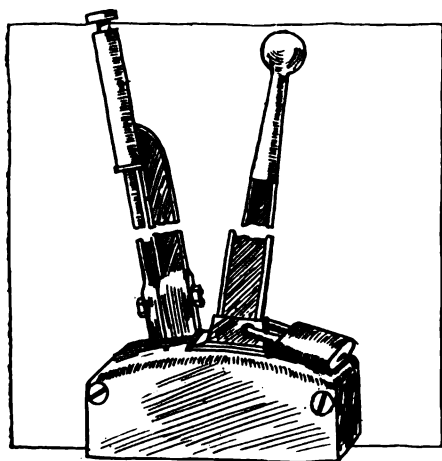


ACCESSORIES & SUPPLIES :

NEUTRAL LEVER LOCK

The A. & B. Specialty Co., Milwaukee. PRICE, \$1.50.

A plate with an upstanding flange which fits around the gear lever like a collar has in it two holes. A hole is drilled in the shank of the lever in line with the two holes in the collar, and all three holes are in line when the lever



A. B. neutral lever lock

is in neutral. A Yale padlock, supplied with the device, is slipped through the three holes, holding the lever in neutral position.

STERLING VACUUM BAR TIRES

Rutherford Rubber Co., Rutherford, N. J. PRICE, shoes, 30 x 3½, clincher, \$16.66; tubes, \$4.46.

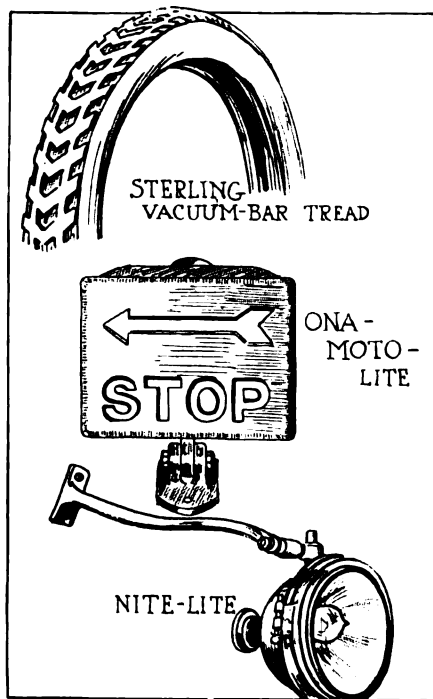
Sterling tires are designed to be run with low pressure, the 30 x 3½—Ford size—being inflated to 50 lbs. The company is making a special offer to Ford owners of five demountable wheels and five rims, wheels finished black or natural wood, with each order for five Ford shoes and five tubes. The guarantee is for 5,000 miles and repairs are made free during the life of the tire.

ONA-MOTO-LITE

Ona-Moto-Lite Co., 30 Euclid Arcade, Cleveland. PRICE, \$5.

A small black enameled box 4 in. high and 5 in. long is mounted on a front fender or at the rear of the car. An illuminated arrow of red glass points to the left when the car is to be turned in that direction, while the right arrow is green. The word "Stop" is below the arrow and is illuminated when the car is to be halted. A pilot switch installed

on the dashboard indicates the working of the signal and shows the driver if it is out of order. The arrows and the "Stop" are 4½ in. long.



Upper—Sterling vacuum bar tread. Center—Ona-Moto-Lite signal. Lower—Nite-Lite dirigible searchlight

NITE-LITE

Manufacturers Distributing Co. of America, 246 West 56th street, New York. PRICES, 6-in., \$6.50; 8-in., \$8; 10-in., \$7.50. DEALERS, 6 or more, 25 per cent.

A lamp which is designed to throw a concentrated parallel pencil of light and which may be used as a headlight or spot-light. Each style is supplied for any desired candlepower from 21 to 75. The two smaller sizes are furnished with brackets for attachment to the side of the car or to the windshield; the large lamp, which really is a headlight, is supplied with or without bracket. Brackets have universal joints so that the beam of light can be turned in any direction.

McKINNON STORAGE STAND

McKinnon Dash Co., Buffalo.

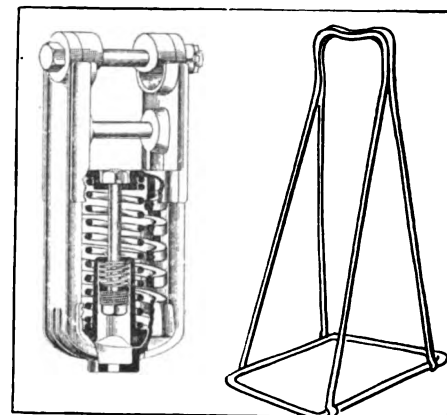
Designed to hold tires off the ground. Made in two sizes, one for Fords and other small cars, and the other for larger machines. Small size is 15¼ inches high and larger size 17 inches high. The bases

are 7 x 8 inches. A set of four weighs, in the small size, 10¼ pounds; large size, 11 pounds. The material used is steel, electrically welded.

PAMCO SHOCK ABSORBER

Auto Devices Co., 3027 Locust street, St. Louis. PRICE, \$15.

This is a triple spring device in which two springs take the direct load while a third smaller spring takes the rebound; all the springs are helicals and all are of vanadium steel. The outer



Left—Pamco shock absorber. Right—McKinnon storage stand

spring is much heavier than the inner ones and is of rectangular cross section; the second spring is of round section and is described as being automatically adjusting to the weight of the load. The rebound spring is in a little separate housing in the center of the device. When the weight of the car is on the springs there is a floating action, the springs taking shocks in both directions. The self-adjusting load spring is connected with one shackle bolt and the load spring at the opposite end is connected with the other shackle bolt.

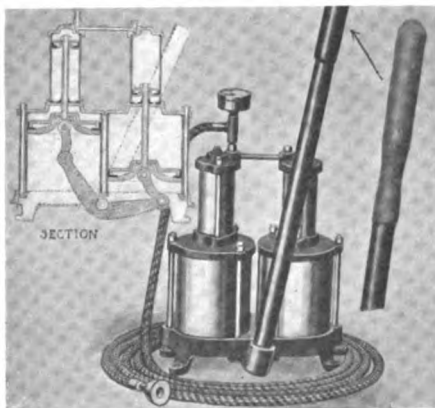
MOTOR WORLD'S SIMPLIFIED SYSTEM OF ACCOUNTING

Next week in Motor World will begin a series of stories on an accounting system that has been devised by this publication to meet the needs of the garageman and dealer whose business is in need of an accurate but simple set of accounting methods. An announcement of this system appears this week on page 5.

DEAD EASY TIRE PUMP

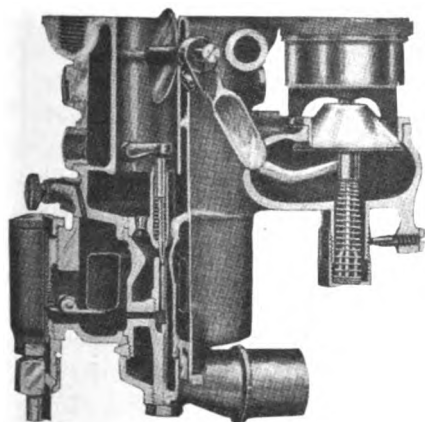
Globe Mfg. Co., Battle Creek, Mich. PRICE, cylinders and trimmings nickelled and other parts black enamel, \$15; all enamel, \$12.50. DEALERS, 25 per cent.

This is a two-stage compression pump operated by a long lever. There are two pairs of cylinders in tandem, each large cylinder, bore $3\frac{1}{2}$ in., being surmounted by a small one, bore $1\frac{5}{8}$ in. The two pistons of each cylinder are connected by a piston rod which passes through a dividing head having packing which acts as a valve, allowing air to be forced upward from the large cylinder into the small one, but preventing its return. A rocker arm is connected with each large piston, at the bottom, by connecting links. The action of the connections is such that the pistons move rapidly at the beginning of the stroke when the pres-



Dead Easy tire pump

sure is light and slowly towards the end of the stroke when there is more pressure. The air compressed in the large cylinders is transferred at about 40 lbs. to the small cylinders and thence sent to the outlet. Dimensions without handle, $5 \times 8\frac{1}{2} \times 9$ in. high; handle in two sections each 16 in. long. Weight, 13 lbs.



Weber automatic control carburetor

sure is light and slowly towards the end of the stroke when there is more pressure. The air compressed in the large cylinders is transferred at about 40 lbs. to the small cylinders and thence sent to the outlet. Dimensions without handle, $5 \times 8\frac{1}{2} \times 9$ in. high; handle in two sections each 16 in. long. Weight, 13 lbs.

WEBBER CARBURETER

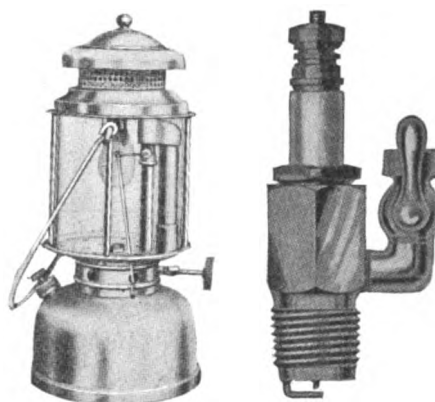
Webber Mfg. Co., 68 Stanhope street, Boston. PRICE, $1\frac{1}{4}$, \$30; $1\frac{1}{2}$, \$35; $1\frac{3}{4}$, \$40; 2, \$45.

Automatic fuel control is vested in the air valve, which is connected to the needle valve in the centrally located spray nozzle through an arm and opens the valve in proportion to the air opening. A dashpot above the air valve prevents fluttering. There are two adjustments in addition to the air-valve spring tension adjustment; one is for low speed and the other for high speed, and these are non-interfering. The richness of the mixture can be regulated by a lever on the steering column without upsetting the proportions at high and low speeds. The carbureter is intended to be used

STORM KING LANTERN

National Stamping & Electric Works, 410 South Clinton street, Chicago.

The fuel is either gasoline or kerosene; gasoline is recommended because it is



Left—Storm King Portable lamp. Right—Champion All-In-One plug

less liable to clog the burner. A mantle of the "rag" type is used, and the light is rated at 200 candlepower. A quart of gasoline is said to be sufficient for 15 hours burning. An automatic cleaning attachment prevents the clogging of the burner tip. It is claimed that turning the lantern upside down or rolling it on its side will not extinguish it or even affect the light and that it is safe because if dropped from such a height as to cause any breakage, the light will be extinguished before the fuel can ignite. The chimney is of mica and therefore is practically unbreakable.

FOSTER OWL LIGHT

C. H. Foster Accessories Co., 2303 Michigan avenue, Chicago. PRICE, \$7.50.

One of the features of the Owl light is the swivel which permits it to be turned in any direction. This is of such size and design that it holds firmly regardless of jolting and vibration, though it is easily moved by hand. The bracket

is easily attached to any windshield without other fittings. The lamp is furnished with tungsten bulb, bracket, 3 ft. of cord and two sockets.

CHAMPION ALL IN ONE PLUG

Champion Spark Plug Co., Toledo, O. PRICE, \$1.25.

The All-In-One is a new type of priming plug made in eight different styles to suit different types of motors. It is the original petcock type formerly manufactured by the Frontier Specialty Co., whose spark plug business was acquired by the Champion company some time ago.

DANN SELF-OILING BUSHINGS

CHICAGO, November 6—A new self-lubricating bearing, in which graphite is intimately mixed with the metal forming



Foster Owl swivelling searchlight

the bearing and in which bearing no lubrication other than that which is afforded by the graphite is needed, has been brought out by the Dann Spring Insert Co., which is furnishing the bearing for small bushing work, such as spring eyes, universal joints, steering and similar parts. This new self-lubricating metal, known as Amalgamite, is a compound in which the bearing metals are pulverized physically rather than being melted by heat. In this pulverized condition the metal is mixed with air-floated flake graphite, the metal and the graphite being pressed into a steel shell, which serves as a container for the bearing compound, many tons pressure being used in the work. Thus instead of pouring the bushing it is pressed into formation.

The graphite lubricant is not in layers, spotted, put in depressions in the metal or held in the metal by any adhesive, but is mixed physically so that the cellular structure of the metals is intimately mixed with the graphite, the theory being that it is a molecular mixture of the metal and graphite, so that graphite is a part of the warp and woof of the metal itself.



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A System for You

AN accounting system for keeping straight the accounts of the garageman and dealer has been perfected by Motor World and will be described in a series of articles which will begin next week, November 24, on page 5. An announcement of the system appears this week on page 5. Read it.

The need for system in the garage is pointedly emphasized on page 5 by the question: Where will YOU be when you are ten years older? The question is important. The man whose business is today slipping along in a systemless rut will never get out of that rut and become an honest-to-god business man unless he injects some system into his business.

You Need Business Methods

Lack of proper business methods is one of the crying needs of this trade today.

Heretofore there has been no accounting system that was well suited to the garage and car selling trade. For that reason some tradesmen have failed to install a system. Others have gone without system because they are not awake to the need for it and do not realize their true condition.

It is time for every man to awake and THINK! Stop right now and give serious thought: Ten years from today what will you be doing? Will you have a well systematized business that can support you in your later years or will you still be slipping along in the same old way, making a bare living and waiting for the time when—when—What? Yes, what? That's the question: What?

So long as you use a proper system Motor World doesn't care what system you use. But if you have no system, and want one that is simple yet adequate, follow this series through.

Hold Your Own Show

AS the show season begins, it is pertinent for dealers to consider whether they or an outsider are to hold the annual show—whether they are to promote or be "promoted."

It is assuredly the best plan for the show to be staged by the dealers themselves and not by an outside promoter, who reaps all the pecuniary profits.

Many dealer associations owe their life to their successful promotion of the annual show. The revenue derived pays all the show expenses, permits a dividend and leaves a balance in the bank to the association's credit. The show is the big event in the life of these associations.

In certain other cities, where there are no thriving dealer associations, the show is staged by a promoter. He enters the town, rents a building, sells the space, sells program advertising, gets lots of newspaper publicity free, and cleans up a nice sum of money. The dealers may get good show results, but the net result is not so good as if the dealers themselves held the show.

Even if the dealers in a town are unable to develop enough cooperation to hold an association together through the year, they will find it profitable if they will but get together on this show question. In a recent number of Motor World the holding of a show was described in detail step by step. It is not an impossible task and is one well worth trying.

Get Acquainted

THERE is need for better acquaintance among the manufacturer, jobber, distributor, dealer and garageman. It is something that should be attended to in a systematic way.

At a number of recent conventions of associations questions of difference came up. The dealers and garagemen have points of complaint against the manufacturers and jobbers. The jobbers would like to see certain changes in their relations with the garagemen, dealers and manufacturers. The manufacturers also have points of complaint.

Instead of associations going blindly ahead—not all do so—and harboring the existing feeling, an attempt should be made to get a better understanding. Before letting a fight begin, arbitrate. That is the sensible and modern method.

Committees for this work should be appointed. The better acquaintance of all branches of this great industry should be promoted. When the situation is analyzed the supposed points of vast difference generally simmer down amazingly. This suggestion is made to every association in the motor car trade.

Dealers' Opinions

Simple Accounting System Needed in the Garage

Absolutely Essential That Each Separate Department Show a Profit

Editor Motor World:

The study of repairshop management and methods is important, as the service end is the link between the salesroom or garage and the satisfied customer. It also is a big factor in the sale of supplies as well as a large per cent of the oils, greases, hardware, etc., are sold through the shop.

The shop, in many garages, has been the goat, while the selling end received undue credit. As an example. A used car is taken in trade, \$400 being allowed. Two hundred dollars in labor and parts is spent on it to get it in shape to sell again. The car is finally sold for \$425. The car salesman shakes hands with himself and tells what a good deal he made, "got \$25 more than I allowed." But the \$200 comes out of the shop, as most garages have a poor cost system or none at all. Most of them figure the total paid out for labor and paid in by labor and strike a balance, and with a number of \$200 items as stated, for which no credit is given. The garageman's cry is, "I lose every year on my shop." While the shop could just as well be doing a customer's \$200 job as fixing up junk for the sales department, for which no credit is given.

This example is typical of dozens and dozens of garages where I have worked and visited when out on the road selling myself.

I think the average garageman needs an educational campaign on business principles and cost systems to let him know where he makes and where he loses in whatever end of the business it may be.

M. R. Potter,

Susquehanna Motor Car Co.
Wilkes-Barre, Pa.

Philadelphia S. A. E. Section

PHILADELPHIA, November 11—At a meeting held here last night, the movement which has been on foot for some time to organize a local section of the Society of Automobile Engineers finally bore fruit. A new section, subject to the approval of the council of the parent body, was created under the name Pennsylvania Section.

There were about 50 in attendance at the meeting and the dinner which preceded it, of which about half were members of the S. A. E. and the remainder were members of the Electric Vehicle



W. C. ROBINSON
Stutz, Allen and
National, Des Moines

District Representatives

XXXIII

This is No. 33 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

W. C. Robinson, who is district representative for Stutz, Allen and National cars in 48 counties in southern and eastern Iowa, with headquarters at 1104 Locust street, Des Moines, began his motor car work as a mechanic with the Mason Motor Car Co., where he went through the whole factory and then took an automobile engineering course at the Highland Park College. He joined the Manufacturers' Selling Agency and handled Imperials for a year and later handled the Hudson, the Krit and the Moyer. He went with the Des Moines Motor Car Co. as a salesman, bought stock in the company, and later bought more stock and became president and general manager. After a year of this he sold out and formed the Successful Motor Sales Co., his present company, of which he is president and general manager.

Association and others who intend to become affiliated with the new section. The temporary officers appointed by the nominating committee are E. S. Foljambe, chairman; B. B. Bachman, secretary, and Tinius Y. Olsen, treasurer. An application will be made to the parent organization for a section charter in the near future.

Salesmen's Body Would Help Trade

**"Cooperation, Goodfellowship, Courtesy,"
Would Be the Slogan**

Editor Motor World:

Being an enthusiastic believer in missionary work, also in advertising, I read your editorials always. Noticed the details on the jobbers' meeting at Kansas City and your reports are well worth filing for reference.

Having formerly been a department man in St. Louis on accessories, I appreciated your article on the New Idea Salesman, and believe they are not born but "molded."

Why not suggest through your medium a salesmen's cooperative association of exclusive accessory salesmen, representing both manufacturers and jobbers with this principle: Cooperation—goodfellowship—courtesy. Also have a benefit for members who need help in securing a position, or who become disabled by sickness or accident. You charge a fee of, say, 50 cents a month, which is \$6 a year, or more if necessary.

There must be altogether about 5,000 or more exclusive outside and inside experienced accessory men who have ideas, but they are held down so long on the

common salary that they don't think there is a place for the New Idea Salesman.—I would say the man who uses his brains.

I woke up to the value of a man who has individual ideas and am now the district representative for Michigan, Ohio north of Columbus, and Indiana north of Indianapolis, for ————. Am always preaching overhead to price-cutters and some believe what I say. Also tell them to be prompt in collecting accounts, as that helps them to pay us promptly.

A. E. R.

Cleveland.

Changes In Maxwell Organization

DETROIT, November 6—J. J. Plath, formerly zone supervisor for the North Atlantic states for the Maxwell Motor Co., has been made sales manager with special jurisdiction over distribution. John Yoke, formerly zone supervisor in Kansas City, has been made district supervisor of sales and will devote his time to wholesale matters. C. E. Stebins has been made assistant sales manager and will have charge of the sales organization.

Ferro Adds 12-Cylinder Motor

CLEVELAND, Nov. 9—Following its success with an eight-cylinder V-type automobile motor, the Ferro Machine & Foundry Co. is preparing shortly to place on the market a twelve-cylinder V-motor with overhead valves and a detachable head. The motor will be practically the same in every detail as the eight and will be $2\frac{7}{8} \times 4\frac{1}{2}$, giving an S. A. E. rating of 39.7 and a piston displacement of 350.5 cu. in.; the weight without starter or generator is given as 730 lbs.

The RETAIL NEWS

MIDDLE WEST

Charles N. Harvey, Zanesville, O., plans to erect a \$25,000 garage.

The Wapakoneta Machine Co., Wapakoneta, O., will erect an addition, 50 x 50.

John W. McFerran, owner of the Stark Rubber & Supply Co., Second street and Cleveland avenue, N. W., Canton, O., has filed a notice of assignment. He places his personal property value at \$2,000.

The Indianapolis National Motor Sales Co., Indianapolis, has been formed to handle the National in Indiana. The sales have heretofore been handled by the factory. B. M. Wylie, who is president of the Indianapolis Automobile Trade Association, is president and manager of the new company.

The Boyle Engineering Co., Cincinnati, has opened an Exide service station at 224-26 East Seventh street. M. A. Boyle, a Cincinnati man, is sales manager. W. C. Kennally is in charge of the battery work.

B. A. Odell, South Lyon, Mich., has opened the Ford Service Garage.

W. L. Huffman and M. Allen, formerly with the Lenox Garage & Motor Sales Co., Richmond, Mich., are now doing business under the name of Lenox Motor Sales Co. and will continue to handle the Overland.

Floyd Johnson, Mt. Pleasant, Mich., Ford dealer, recently opened a new garage.

Rev. W. J. Prestidge, formerly pastor of the Congregational Church, Lake Odessa, Mich., who was part owner in the garage business conducted by W. H. Bennett and himself, has sold his interest to his partner.

Dr. J. H. Jones, Parma, Mich., who recently became a Studebaker dealer, will continue to handle the Ford.

Peter Hartley, St. Charles, Mich., has moved into his new garage, which has also a complete repair department. Hartley handles the Chevrolet.

Van Duzen-Roys & Co., Columbus, O., has been appointed distributor of the Abbott-Detroit in Ohio, Indiana and West Virginia.

The Stenger & De Young Garage, Williamston, Mich., has been sold to Claude and Ray Gosline.

Jones & Wheelock, Cheboygan, Mich., a new firm, has opened a garage and handles also accessories and supplies.

Gary Davis, Hudson, Mich., has opened a garage in the Brick building.

The Start-Lancaster Garage, Burr Oak, Mich., is nearing completion. It will be one story, 50 x 100.

The Buell Auto Co., Jackson, Mich., which is erecting a large garage on West Cortland street and handles the Dodge, has taken the agency for the Buick.

C. J. Clapp, Monroe, Mich., has taken the agency for the Paige and has purchased the Monroe Garage from W. G. Flummerfelt.

L. H. Remenap & Sons, Reed City, Mich., hardware dealer and agent for the Overland, has inaugurated a new salesroom and garage.

The Beelby-Neureither Motor Sales Co., Grand Rapids, Mich., is the new name of the Metz Garage, which was conducted by George A. Beelby and Arthur C. Neureither. The company handles the Chevrolet.

W. G. Stocken, Fenton, Mich., has opened a garage.

The Northern Garage Co., Houghton, Mich.,

has purchased the Superior Garage in Calumet and has established a branch for the sale of the Overland in that city.

Harvey G. McCrum, Jackson, Mich., has leased quarters at Jackson and Pearl streets, where he will handle the Oakland and Reo.

P. J. Welch & Son, Charlotte, Mich., has opened a new garage on Main street.

The Michigan Auto Co., Red Jacket, Mich., has been reorganized by Paul Pawler and Clayton C. Kohlhaas. The company will continue to handle the Chalmers, Paige and Saxon.

C. A. McCommons has opened his new garage at Clinton, Wis., erected at a cost of \$10,000. The machine shop department has been leased by H. A. Rowe, who is installing a complete equipment. The repairshop is 35 x 50 ft.

Schwallen Bros., New Richmond, Wis., have awarded contracts for the erection of a new concrete garage, to be one story, 50 x 70 ft.

George Bishop, formerly of Central Lake, Mich., has bought the Grant garage at Grant, Mich., for \$5,100.

The Benedict-Bulck Garage at Ionia, Mich., is being enlarged by an addition 85 x 130 ft.

The Imperial Garage Co. has been organized at Springfield, Ill. The incorporators are R. L. Conn, A. M. Weston and L. E. Vogel. The firm will operate a garage and salesroom.

F. A. Dunniway, Canton, Ill., has leased the double front building on East Pine street, near Main, and is remodeling it for a garage. He will carry a line of accessories.

The Auto Livery Co., 2807 Vliet street, Milwaukee, is about to build a large addition to its garage and machine shop. The new building will afford room for 30 cars and will cost about \$7,500.

The Brand & Outcalt Garage Co., Columbia City, Ind., has purchased land adjoining its property and in the spring will erect a new garage 110 x 150 ft. The firm handles the Buick and Studebaker.

Joseph Gesell, Morrison, Ill., is building a garage on Main street to be opened about December 1.

Frank Fox, Cincinnati, will build a garage on Fifth street near Main.

Carter & Barkle, Eagle River, Wis., are building a two-story garage, 50 x 55 ft.

E. L. Anderson, 1651 Robinson avenue, Portsmouth, O., will build an addition which will double the capacity of his garage.

Rudolph Isch, Peoria, Ill., state distributor for the Inter-State, has established a salesroom and service station at 2019 Michigan avenue, Chicago.

The Dunham Motor Car Co., Cleveland, has moved from 5206 Euclid avenue to the Euclid Square Garage at East 13th street.

The Jackson Motor Sales Co., Cleveland, has moved from 2039 Euclid avenue to the location recently vacated by the Dunham Motor Car Co., at 5206 Euclid avenue.

The Stutz Sales Co., Stutz dealer in Dayton, O., has opened a salesroom at 9-10 Birm building.

Louis Geyler Co. is building a garage at 1901-2-3 Main street, Peoria, Ill., which will be the distributing point for central Illinois for the Hudson. The garage will be 70 x 100.

H. W. Kindig, Columbus, O., has opened a repairshop and garage at 115 North Wall street. He specializes on day storage.

J. E. Wehrman has let the contract for a garage at Goodenow, Ill. The structure will be of one story and will have a repairshop and accessory sales department.

Ahlene & Nowers has purchased livery barn at 411 13th street, Rock Island, Ill., and will convert it into a garage and supply station. Accessories will be handled.

Harvey B. Wilson, De Witt, Ill., has commenced the construction of a garage, two stories, 40 x 80 ft. He will carry supplies and accessories.

The Lee Tire Sales Co., Columbus, has opened a branch at 4412 Euclid avenue, Cleveland. Frank P. Corbett is manager.

The Buckeye Tire & Supply Co. is a new concern at 75 South Fourth street, Columbus, O., operated by C. S. Sifferd and H. C. Dunning.

The Sedgewick-Wackie Auto Repair Co., 113-119 Superior street, Toledo, has been reorganized as the Superior Garage.

A. T. Smith, St. Johns, Mich., Ford distributor, has arranged to have a new garage erected at Brush and Higham streets. It will be a two-story structure, 80 x 100.

D. L. Hunt and R. G. Allison, St. Johns, Mich., Briscoe and Chalmers dealers, have leased the Ward building and are having it fitted up as a garage and salesroom.

George Shauli, Lansing, Mich., has bought the interest of W. C. La Mont in the garage business heretofore conducted by them in partnership.

The Frank Seaman Garage, Grant, Mich., has been purchased by George Bishop, of Central Lake.

The Service Garage has been opened at 235 Apple street, Muskegon, Mich.

James Ewing has purchased the property at the southwest corner of Main and Green streets, Decatur, Ill., and will construct a garage and salesroom. Ewing is a Westcott dealer and with the opening of his new building plans to take on several additional lines.

J. A. Moore and L. E. Dash have formed a partnership and opened a tire vulcanizing plant in Decatur, Ill.

J. R. Morgan has purchased a half interest in the E. P. Kent repairshop in Maroa, Ill. It is planned to enlarge and modernize the plant.

H. F. Hartle has taken charge of the repair department of the Standard Garage on Fourth avenue, Rockford, Ill., having sold his garage and supply house at Rochelle, Ill.

Charles B. Wiggins has purchased of W. C. Dallenbach the livery barn at the corner of Washington and Hickory streets, Champaign, Ill., and will erect a garage, 100 x 130, to cost \$25,000.

M. N. Pierson will build a garage at the corner of Frink and Main streets, Peoria, Ill., to cost between \$15,000 and \$20,000.

W. E. Dewey, who has conducted a garage and repairshop for the past three years on North First street, Rockford, Ill., disposed of the plant this week to H. H. Towne and A. E. Raymond. Plans are being made to greatly enlarge the business and make many improvements.

The Beatty Auto Co., Quincy, Ill., has announced that only electric cars will be given attention. This applies to both sales agencies and repair work.

A. G. Jennings, New London, Wis., is building an addition to his garage, making it 64 x 100 ft.

The Lippow Motor & Cycle Co., North avenue and Seventh street, Milwaukee, is build-

ing a \$5,000 addition to its garage and will use the added space for repairshop and storage.

The Enger Motor Sales Co., recently incorporated at Milwaukee by Robert D. Mitchell and E. D. Galt to represent the Enger in the Wisconsin territory, is establishing offices and service station in the new garage building on Eleventh street, near Grand avenue.

Matthew J. Rademacher, proprietor of the Auto Livery Co., 2807 Villet street, Milwaukee, has broken ground for a garage and shop addition, 30 x 120 ft.

L. F. Haeffrich, Buick dealer, Reedsville, Wis., is building a garage, one story, 40 x 80 ft., half to be used for office and storage and half for repairshop.

Keller & Barbeau, until recently at Fond du Lac, Wis., have organized the Butternut Auto Co. and will establish a garage and repairshop at Butternut, Wis., in a building now under construction.

D. E. Moulton and E. V. Sexsmith, Fond du Lac, Wis., have organized the Guarantee Repair Co. and opened a garage and repairshop at 51-53 West Second street. Moulton formerly was manager of a garage at Huron, S. D. The company will do a general machinery and electrical repair business in addition to operating a garage.

The Creek Motor Sales Co., 447 Jackson street, Milwaukee, Apperson and Inter-State dealer in Wisconsin and upper Michigan, has disposed of its agency contracts, lease on its garage and salesrooms and stock of supplies and accessories to J. C. Fowler, of LaCrosse, Wis.

The Auburn Motor Sales Co., Milwaukee, which has been incorporated with \$5,000 capital stock to act as state agent for the Auburn, has leased the former Edgar F. Sanger garage at 441 Jackson street, as headquarters and service station. Sanger moves to the new Sanger garage at 564-574 Farwell avenue.

The Noble Z. Smith Co., Green Bay, Wis., National distributor for the Fox River valley district of Wisconsin, has established an office at 730 College avenue, Appleton, Wis., in addition to maintaining an office in Green Bay in the Gazette building.

John Robinson has purchased a half interest in the Badger Vulcanizing & Repair Co., 1025 North Eighth street, Sheboygan, Wis., and will take an active part with George Schraut, the other partner.

Ed. Copps is building an office and garage at 333 Hartford avenue, Milwaukee, Wis.

The Dicke Motor Car Co., Manitowoc, Wis., Ford dealer, has established a branch house at Two Rivers, Wis., under the name of Two Rivers Auto Supply Co. The company will operate a service station for Ford cars and sell supplies and accessories.

Adolph Kummerow, Two Rivers, Wis., Kissel Kar dealer, has formed the Auto Service Co., to operate a garage and service station.

O. F. Brewer, Madison, Wis., has leased the Kentzler livery, now being converted into a garage and repairshop, at 107-111 East Doty street, and will handle the Moline-Knight.

The Federal Realty Co., Milwaukee, will build a \$20,000 garage at 159-161 Onelda street, adjoining the Masonic Temple. The garage will be occupied by the Schreiber-Boorse Motor Car Co., now located at 190 Fifth street, Milwaukee.

The Sanger Automobile Co., Milwaukee, has taken occupancy of a new garage at 564-574 Farwell avenue. It is 75 x 150 ft., will accommodate 275 cars and has a repairshop, salesroom and offices. The concern represents the Franklin.

Jacobson & Austin, Jeffery and Saxon dealers, have taken occupancy of their new garage at 207-209 East Washington avenue, Madison, Wis.

EAST

Edward Kelly, 417 West Blackwell street, Dover, N. J., is securing bids on a garage, 60 x 160.

W. J. and G. L. Smith, Bala, Pa., will erect a garage, 50 x 100.

J. Gregory & Co. Allentown, Pa., has purchased Fred Wunderly's repairshop and garage.

The McCurdy-May Co., Pittsburgh, which has handled the Pierce-Arrow for several years, has been made Velle distributor in western Pennsylvania, eastern Ohio and all of West Virginia. The Pierce-Arrow business will be continued.

F. E. Wier, formerly Ford manager in Pittsburgh, has taken the Palge agency in Buffalo.

The Anderson Automobile Co. has been formed in York, Pa., by R. P. Anderson, Arthur H. Geesey and William B. Gemmill, who have been trading as the York Auto Exchange. They are about to erect a three-story garage, 60 x 90, at King and Queen

MotorWorld's Simplified Accounting System

Page 5

streets. They will handle the Studebaker, Cadillac and Reo.

Ensslen Bros., Reading, Pa., have secured a permit to build a two-story garage, 16 x 32, at 255 North Third street. It will cost \$1,000.

S. W. Barrett, 752 Elmwood avenue, Buffalo, is securing plans for a one-story garage, 20 x 163 ft.

Fred C. Prichard, Huntington, W. Va., plans to build a garage.

Samuel L. Felber, Long Beach, N. Y., plans to build a garage, 100 x 100, and a chauffeurs' hotel, 60 x 100.

W. W. Price, Elm Grove, W. Va., plans to erect a new garage of three stories.

The Stuyvesant Heights Garage, Brooklyn, has secured plans for a garage to be erected on the west side of Stuyvesant avenue, south of Kosciuszko street.

The Bonnell Motor Car Co., Newark, N. J., which has handled the Dodge Bros. car only, has added the Haynes.

Howard Bros., New Castle, Pa., are having erected a two-story brick garage on Croton avenue.

The Bowman Sales Co., Erie, Pa., has opened new salesrooms at 1704 State street; it handles the King and Empire.

The Hilliard & Yopes Co., Erie, Pa., is altering and improving its garage at 607 French street.

The Electric Garage, Buffalo, of which Berger & Deckop, Inc., is the owner, will move into new quarters December 1 at 1225 Main street. Present quarters are at Main and Barker streets.

William Morris, Gloversville, N. Y., plans to open a garage and salesroom at 8 Forest street. He handles the Metz.

The Bolton-Meyers Auto & Truck Co., Troy, N. Y., has filed a petition in bankruptcy. Liabilities are \$17,030 and assets \$3,185.

The Sterling Motor Truck Co. of New Jersey, Newark, has leased a two-story garage, 29 x 102, at 48-50 Orange street. It will be used for the sale of the Sterling truck.

SOUTH

W. P. Hunter, Danville, Ky., has let the contract for a garage in Harrodsburg, Ky.

The Ford Motor Co. will erect a garage in Chattanooga, Tenn. It will cost \$20,000.

Allen & Cook, Montgomery, Ala., have opened a salesroom at 308 Moulton street; the proprietors, J. B. and W. E. Allen, and A. W. Cook, recently became Mitchell dealers.

The Kentucky Automobile Co., Louisville, Ky., has taken possession of a new three-story building at 728 South Fourth street. The company handles the Cadillac and Oakland in Kentucky. Hubert Levy is president.

The Jackson Motor Sales Co., Jackson, Tenn., has been formed by J. W. Vanden, Frank Warmoth and W. R. Beasley. The capitalization is \$6,000.

The Rock City Auto & Storage Co., Nashville, Tenn., has been incorporated at \$1,000. The members are T. E. Collins, Morgan W. Brown and Robert L. Burch.

The Ogle Auto Repair Corporation, Norfolk, Va., has been chartered at \$10,000 by William Ogle, president, and C. Ogle, secretary.

The National Garage has been formed in Roanoke, Va., by H. C. Elliott, president and

D. R. Shaffner, secretary-treasurer; it is capitalized at \$25,000 and will operate a repairshop.

The City Point Motor Co., Hopewell, Va., will enlarge and improve its garage.

SOUTH WEST

The Brown Scientific Inner Tube Co. of Missouri has opened headquarters at 3040 Locust street, St. Louis.

Tom L. Anderson, Hannibal, Mo., has purchased the garage and accessory store of Charles L. Mueller. Anderson will have as an associate in the business his son, Cyrus Anderson.

The Leaser-Glaser Motor Co., St. Louis, has been organized with a capital of \$7,000. The stockholders are Arthur Leaser, Walter M. Glaser, B. L. Schwartz and A. B. Frey.

The Weiss-Bosley Sales Co., St. Louis, will move to 1413 Chestnut street, where it will deal in cars and accessories.

The Stitch-in-Time Garage & Repair Co., St. Louis, has been organized with a capital stock of \$3,000. E. H. Chesire and C. M. Gill are the principal stockholders.

McArthur Bros., 321 North Central avenue, Phoenix, Ariz., have opened branches in Douglas and Tucson for the sale of the Dodge, Jeffery and Packard. Warren McArthur is in charge in Douglas and H. A. Deans in the Tucson establishment, which is at 24 North Stone avenue. Charles McArthur continues at the head of the business in Phoenix.

Paul Bennett, Phoenix, Ariz., has purchased the supply and accessory department of the O'Neill Auto & Supply Co., 323 North Central avenue. He will continue the business at the old location.

D. E. Howard has opened a garage and repairshop at 25 North Second street, Phoenix, Ariz.

PACIFIC COAST

The Brownlie Sales Co., 1405 Bush avenue, San Francisco, has succeeded the firm of Brownlie & Parker. The firm members are Wallace Brownlie and F. I. Ellert. The company distributes accessories and supplies, featuring Goodyear tires and Monogram oils.

Bowman & Libby Retires as Overland Distributer

Sells Minnesota Business to New Company—Was Second Largest Overland Distributer in the World

MINNEAPOLIS, Nov. 15—Bowman & Libby, Inc., Overland and Willys-Knight distributor, will retire and the sale of these cars is to be transferred to the Overland Stores Co., which now starts a Minneapolis branch. Bowman & Libby controlled a large Minnesota territory, as well as contiguous territory in parts of Wisconsin, South Dakota and Iowa.

The business reached such a point that it required investment of a size that Bowman & Libby did not feel justified in undertaking without a long-term contract. Accordingly, a mutually satisfactory arrangement was entered into whereby the Overland Stores Co. purchased the business. Several months ago the Overland Stores Co. acquired a plot of several acres on University avenue, upon which it immediately started the erection of a huge plant for warehouse and service purposes and for wholesale offices and salesroom. This building contains practically ten acres of floor space and is now almost ready for occupancy. Operations will be started in it by Jan. 1 or sooner.

Fred N. Coats, a former sales executive in the head office of the Willys-Overland Co., Toledo, O., has been selected as manager for the Overland Stores Co. in this territory.

Under the proposed plan of the Overland Stores Co., Overland owners in this territory are to be provided with complete service facilities. The warehouse will be stored with the various models of Overland and Willys-Knight cars ready for the demand of the different dealers in the Northwest. A complete stock of duplicate parts will be maintained and the smaller stock of the dealers will be replenished from this central supply.

One of the most important features will be a repairshop completely equipped for handling general repair work, even to complete rebuilding of a car, quickly and economically. Every facility of the main factory itself available for repair work will be made use of here for the benefit of Overland owners.

W. J. Bowman, former president of Bowman & Libby, Inc., has not as yet announced any plans for the future, except that he will leave for California in January with his family, spending the winter on his orange ranch. F. W. Libby, treasurer and manager, also leaves for California in a few days, where he

will remain for a month or two. Libby's plans are not definitely settled, although he will probably join the Willys-Overland Co. in Toledo. The remainder of the Bowman & Libby organization, including Vice-president Frank W. Bowman will continue with the Overland Stores Co. in Minneapolis.

Jackson Trailer Enters Field; Price \$38 to \$98

Made by Miles Mfg. Co., Jackson—Will Carry 1,000, 1,200 and 1,500 Lbs.—Steel and Rubber Tires

JACKSON, Nov. 12—The Miles Mfg. Co. is now making trailers. They bear the nameplate Jackson and are made in three general types, respectively of 1,000, 1,200 and 1,500 lb. capacity. Each type has several models, and these sell at a price ranging from \$38 to \$98, with discounts of from 15 to 25 per cent to dealers, according to the quantity of trailers ordered.

Model 21 has a delivery type body, with flareboards and drop end gate. It is 84 in. long, 42 in. wide. The sideboards are 7 in. high and the width of the flareboards is 4 in. Of this model there are what might be called sub-models which are not different in construction excepting as to bearings and tires. Thus models 21 and 22 have both long distance plain bearings, but steel tires on the former and rubber tires on the latter. Models 23 and 24 have respectively steel and rubber tires, and both have Empire ball bearings. The weight of these trailers, packed for shipment, is 350 lb. Their carrying capacity is 1,000 lb.

The models 30 to 33 are made to carry a load of 1,200 lb. They are 88 in. long, 42 in. wide, and have a rack style body, with 1½-in. hardwood sills and removable sides and ends. They differ only as to bearings and tires, in the same way as models 21 to 24. When ready for shipment they weigh 375 lb.

Models 40 and 41 are made to carry loads up to 1,500 lb. The body, which is of the rack style, is 88 in. long, 42 in. wide, 16 in. high. They have 43 in. long truck type springs. The wheels are of the heavy artillery truck type. Both models have ball bearings, but while model 40 has 1½ in. steel tires, model 41 has 1¾ in. solid rubber tires. They weigh 425 lb. when packed for shipment.

Does It Pay?

**SUPPLY COMPANY
SHUTS ITS DOORS**

**Cut Rate Auto Supply House,
629 Main Street, Is Closed
by Order of District
Court.**

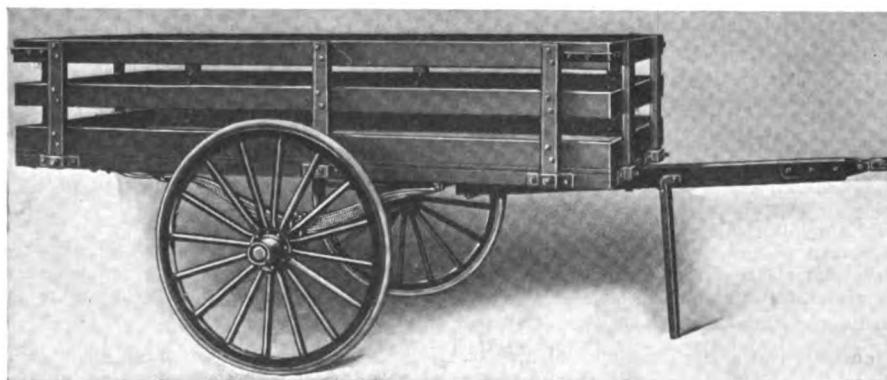
OWNER IS NOW BANKRUPT

The Cut Rate Auto Supply House, 629 Main street, closed its doors this morning, by order of the United States district court of the northern district, when Louis Hirschberg of Chicago, proprietor of the Auto Mart and the Cut Rate Auto Supply House of that city, of which the local concern was a branch house, declared himself bankrupt.

The accessory firm was opened at its present location about a year ago and since that time has made efforts to undersell its competitors. The Peoria stock has a valuation of several thousand dollars. No decision has yet been made as to its disposal. Cloyd M. Kappner has managed the place since a short time after its opening. William F. Zibell, appointed as receiver of the Hirschberg holdings, has taken over the bankrupt stock.

PEORIA CLAIMS WORK

Peoria, Ill. Journal 11/2/15.



The Jackson trailer includes in its bodies a rack type. Half-elliptic springs and rubber tires contribute to roadability

The coupling on all the Jackson trailers is by universal joint with shock-absorbing springs. Brewster green is the standard color.

The prices, F. O. B. Jackson, follow: model 21, \$38; model 22, \$45; model 23, \$50; model 24, \$57; model 30, \$55; model 31, \$65; model 32, \$67; model 33, \$77; model 40, \$78, and model 41, \$98. Discounts to dealers are, 15 per cent for 2 trailers; 16 per cent for 4; 18 per cent for 6; 20 per cent for 12; 22 per cent for 20, and 25 per cent for 25 or more. There are also two special models, 34 and 35, similar to No. 30 to 33, but having a 6 in. drop axle. These trailers are used extensively for special low work.

SCORE POINT IN FIGHT ON "GAS" SEPARATOR

NEW YORK, Nov. 15—The motor car dealers and garagemen have scored a point in their renewed fight against the gasoline separator. They are to have a jury trial in their attempt to compel the fire commissioners to grant a permit to a garage which has no separator. This will permit the merits of the much-advertised and widely condemned device to be passed upon by a jury, which will determine whether it is any good and a necessity. Meanwhile there will be no prosecutions until the case is ended. The litigants in the case are the Bronx Garage Co. and Fire Commissioner Adamson.

The fight has been carried on for years with a see-saw result. The garagemen and dealers, headed by President R. H. Johnston of the Automobile Dealers Association, and counseled by Attorney Charles Thaddeus Terry, have made a strong case but have not succeeded in overthrowing the separator law.

Testing Massachusetts License Laws

BOSTON, Nov. 13—The first move in a plan to test the constitutionality of the Massachusetts Motor Law was started this week. William L. Thibodeau, general counsel for the Automobile Legal Association, drove an unregistered car until he was arrested. In the lower court he was found guilty and appealed. The case now goes to the Superior Court, and it is believed it will find the law is all right there, which will allow another appeal to the Supreme Court. The basis of the case will be fought on the plea that motorists now paying a personal property tax are being unjustly taxed in the guise of registration fees. It is the result of the plan to increase the fees in the next legislature.

Chase to Distribute Owen

BOSTON, Nov. 16—M. F. Chase has been appointed New England sales representative of the Owen Magnetic. Chase is a well known dealer and will have headquarters at 895 Boylston street.

Government Conducting Gasoline Investigation

Will Try to Learn Why Standard Charges 10 Cents in St. Louis, 20 Cents in New York and 17 Cents in Nebraska

ST. LOUIS, Nov. 16—Information has been received here from Washington, D. C., that the Federal Trade Commission has begun a broad and searching investigation "of nearly every phase of the production, transportation, refining and marketing of crude petroleum and its products in this country."

An announcement by the commission said a special investigation is being made of protests against alleged price discrimination in the sale of gasoline which had come from various sections of the country, particularly Missouri, Idaho, California and Georgia. "Some of the complaints," said the official announcement, "alleged unfair practices by former subsidiary companies of the Standard Oil Co. and others are directed against various officials of the so-called independents."

In one of the most recent complaints, made by the Western Oil Jobbers' Association through Congressman Igoe of St. Louis, the Standard Oil Co., it is stated, was charged with attempting to stifle competition by discrimination against independents. It was alleged in the complaint that while the Standard Oil was selling gasoline in St. Louis for about 10 cents a gallon it was retailing the same product in New York for about 20 cents, although the cost of transportation from the oil fields to New York was only one cent a gallon more than to St. Louis. It also was alleged that while Standard Oil gasoline was selling in Missouri for 10 cents it was selling in Nebraska for 17 and in Arkansas for 14 cents, although both these states border on the state of Missouri.

BARNEY IS FINED \$250

NEW YORK, Nov. 11—At the regular meeting of the Contest Board of the American Automobile Association, held at headquarters here today, Barney Oldfield was fined \$250 for driving a demonstration performance in his car on a track in Wichita, Kan., where an outlaw racing meet was being held. The board took up the work of revising the contest rules for 1916, which work will be completed before the first of the year. The board has been requested to issue a sanction covering meets in the Philippine Islands and this will be issued.

Several drivers who have violated the rules during the past year were reinstated and others denied application for reinstatement. Among those reinstated are:

D. K. Sworder, G. C. Bergdoll, Herbert M. Strachan, A. A. Mattison, B. Ward Bean. Applications for reinstatement were denied Arthur Klein, William B. Brown. The following drivers were disqualified for different periods: C. L. Wood, two years; Henry Skutt, A. Ingram and M. J. Crell, until Jan., 1917; James B. Ryall and John A. Maiss were disqualified for one year. Frank Topping, a registered mechanic, who has violated the rules during the present year, was placed on the list of ineligible.

Henshaw Will Stage Parade

BOSTON, Nov. 15—C. S. Henshaw, who has the agency for the Dodge in eastern Massachusetts, has arranged to celebrate the anniversary of his entering business with a parade of Dodge cars, for which he has offered prizes worth \$350. It will be reviewed by Governor Walsh and Mayor Curley. It takes place Nov. 29.

Motometer Injunction Made Permanent

NEW YORK, Nov. 12—The temporary injunction granted May 16, 1914, by the district court to Harrison H. Boyce and the Motometer Co., Inc., against the Stewart-Warner Speedometer Corp., and which was affirmed by the circuit court of appeals last December has been made permanent. The injunction prohibits the Stewart-Warner corporation from infringing the Boyce Motometer patent by the manufacture and sale of a radiator cap thermometer adjudged by the court to be an infringement of the Motometer.

F. Shirley Boyd Passes Away

BOSTON, Nov. 15—F. Shirley Boyd, one of the pioneers in the accessory trade in Boston, who began with the old bicycle regime, died last Friday following an operation for appendicitis. He was very well known throughout the country and was a prominent member of the Bay State A. A. The funeral was held today. He had built up one of the largest accessory businesses in the New England states.

Nordyke & Marmon to Build

NEW YORK, Nov. 16—The Nordyke & Marmon Co. has leased a site, 60 x 100, at 42-44 West 62nd street, and will erect a five-story sales and service building. The present building was first occupied as a motor car establishment in 1903, by the White Co.

Detroit Show Jan. 15-22

DETROIT, Nov. 15—The annual Detroit show, promoted by the Detroit Automobile Dealers' Association, will be held Jan. 15 to 22. More applications for space have been received than in former years and indications are that the show will be a bigger one than last winter's show.

Association News

MINNEAPOLIS ANNUAL MEETING

MINNEAPOLIS, Nov. 15—The annual show, to be held in February, was the principal subject at the annual meeting of the Minneapolis Automobile Trade Association last Wednesday evening. Walter Wilmot, as usual, will manage the enterprise under the supervision of the association.

A contest will be arranged for boys under 18; \$300 will be given in prizes for the best miniature electric or gasoline automobile, made by a boy, and exhibited at the show. The entrants will be in classes, 18 years and under, 15 and under and 12 and under.

Bids were received for decorating the Armory and Annex, but the decision lies with the board of directors. Plans were considered for increasing the exhibit space by 10,000 feet to accommodate what now looks like an unusually large number of applicants. Last year it was necessary to sell space on the stairs.

A committee was appointed to investigate the service situation in the city and recommend some uniform plan.

The Rauch & Lang Electric Car's branch and the Reilly-Herz Co. were elected to membership. The membership of Bowman & Libby, Inc., which recently sold out to the Overland Stores Co., was transferred to the latter company.

In the absence of President Harry E. Pence and several others, officers were not elected; but Pence, Frederick E. Murphy and W. E. Wheeler were re-elected directors, and John Graham and H. E. Wilcox were named to succeed L. E. Horton and D. A. Odell. Pence and Murphy have been respectively president and secretary since the association was formed eight years ago.

TO ORGANIZE WISCONSIN

MILWAUKEE, Nov. 15—After a summer of inactivity and lack of interest the Wisconsin Automobile Business Association has started a movement of reorganization, and, whereas the old association consisted mostly of Milwaukee men, the reorganized body will extend over the whole state. A general meeting will be called early next month.

The first step was a meeting last Wednesday evening at the Republican House clubrooms, called by Roland Moeller, of the Auto Service & Supply Co., who has been secretary of the old association. The old association was formed about 18 months ago. It had 255 members, 50 of whom have taken hold in the new movement, in which it is planned to eliminate abuses, establish better business conditions and promote trade interests.

Because the tire man and the car dealer have different problems and yet are all in the same trade, it is planned to have about ten divisions in the new organization. They are: Garagemen and repairmen; car dealers and salesmen; tire dealers and repairmen; painters and trimmers; gasoline and oil dealers; electrical repairmen; makers of accessories and supplies; jobbers and retailers of accessories and supplies; used car dealers; trade publishers. Changes, however, may be made in the classification.

The garagemen's and repairmen's division will be organized first, and for this purpose Fred C. Carter, Auto Livery Co., was elected chairman, and H. E. Wilson, 92-94 Sixth street, secretary. Carter made an enthusiastic speech at Wednesday's meeting and emphasized the necessity for better business methods.

The officers of the old association, who will hold over for the present, are: President, W. J. Schubert, Milwaukee Auto Specialty Co.; vice-president, F. A. Olsen, Curtis Automobile Co.; secretary, Roland Mueller, Auto Supply & Service Co., 708 Third street, Milwaukee; treasurer, Oscar F. Fischedick, Auto Supply Co.

Chairman Carter of the proposed garagemen's and repairmen's division plans to call four meetings within the next three weeks in four different parts of the city to start things going.

With the call sent out for the meeting Secretary Mueller appended a list of questions to be answered inside of 30 days by those interested. They are:

1. Are you in full accord with the organization?
2. If not, why not?
3. Do you think it worth while to continue this organization at all?
4. Shall the organization continue in its present form?
5. What changes, if any, would you suggest?
6. What should be the main object of the organization?
7. What other objects should the organization follow? (Name several in order of importance.)
8. Should the membership be limited in any way, and if so, in what way?
9. What do you think the dues ought to be?
10. Should we have a paid secretary?
11. What should his salary be?
12. What should be the duties of such a secretary?
13. What meeting day will suit you best?
14. Can you, and will you, attend monthly meetings regularly?
15. Name the 10 whom you would like to see on the board of directors.
16. Name one or more persons whom you would like to see as secretary.

MAINE MAY ORGANIZE

PORTLAND, ME., Nov. 13—To weld the motor car dealers of Maine closer together, the Portland Automobile Deal-

ers Association entertained the dealers from Lewiston at a dinner here this week. At the meeting plans were outlined for a state association of motor dealers. There are to be further meetings and officers elected. E. E. Brewer, one of the leaders in the movement, said at the dinner: "Automobile dealers throughout Maine must organize not only to protect their own interests, but those of purchasers as well. The time is ripe for the men who have their money invested in the motor selling part of this big industry to formulate plans so that they can do business with a feeling of security."

MINNEAPOLIS BUREAUS MERGE

MINNEAPOLIS, Nov. 15—The Minneapolis Automobile Trade Association has decided to take part in the merging of the city's various credit bureaus in the Minneapolis Associated Credit Exchange, Inc. The trade association has conducted a bureau of its own heretofore.

In this centralized credit work much of the over-lapping effort will be eliminated and the overhead of the bureaus will be decreased. The service will be as efficient as before, if not more so. Some, if not all, of the associations which affiliate in the movement will still retain parts of their bureaus, but the data they have will be made available through the new and broader bureau.

Cooperating in the new work are the department stores, retail credit men, builders, hardware men, coal men and one or two private bureaus. The trade association will subscribe out of its treasury to one share of stock for each member. Assistant Secretary Roy B. Simning is one of the incorporators of the new exchange.

COAST MEN GATHER

LOS ANGELES, Nov. 9—The Garage and Repairmen's Association of California held a banquet last night, many prominent men being among the guests. Among those present were:

Ralph C. Cormack, Hollywood Garage; Roy B. Holmes, Holmes Service Depot; J. E. Spencer, Hartford Windshield Mfg. Co.; W. Larsen, Fifth Street Garage; Ray Thomas, Electric Equipment Co.; M. Hoag, Claward Co.; Sam C. Carter; J. A. Cook; J. S. Bushby; Messrs. Hoag and Graham, Auto Sheet Metal Works; Messrs. Hagan and Snyder, Arlington Garage; C. E. Wickham, Annex Auto Repair Shop; Edward McClay, Angelus Garage; Messrs. Curtis and Stevens, All Night and Day Garage; M. Afton, Afton Spring Co.; K. E. Alberg, Alberg Ball Bearing Co.; William Shahan, Acme Garage & Repair Shop; H. Mason, Acme Electrical Auto Works; W. H. Jahne; J. Jauch, Jauch Lamp & Radiator Works; Chas. A. Libby; J. W. McFarland; J. H. Brandt, Manual Arts Garage; W. F. Miller; Messrs. Johnson and Strom, Pacific Ball Bearing Co.; J. L. Pike, Pike Auto Works; Perkins Bros.; Shepard Thompson; F. M. Sinsabaugh; C. R. Russell, South Park Garage; J. F. Armstrong, Spark's Garage; S. Q. Shannon, Studebaker Corp.; Wm.

Taylor, Vulcan Iron & Tool Works; A. N. Davidson, Wall Street Garage; J. W. Haslam, West Hollywood Garage; G. J. Woodward, Woodward Garage; Messrs. Winans and Love, White Garage; D. P. Oatman, secretary-treasurer; Messrs. Gillens and Taylor, Richfield Oil Co.; J. W. Maltman; Hon. James McKnight; Hon. J. White.

TOURING BUREAU POPULAR

MILWAUKEE, Nov. 15—The coming of the cold months and the cessation of touring will mean the closing for a few months of the Touring Bureau of the Milwaukee Automobile Dealers, Inc., which bureau has been one of the association's most valuable works. It will be reopened in the spring in an enlarged form.

The bureau has routed 2,200 tourists for trips which range from the one-day and week-end sort to transcontinental travels. Maps, data and complete information has been available, and tourists have cooperated by sending in post-card data on roads. The bureau has the support of the hotels. All dealers referred car buyers to the bureau and practically made it a part of their new car service. No charge was made to car owners.

Assistant Secretary Bart J. Ruddle states that the dealers' experience with the work indicates that it is a profitable field for any other city's dealers; 35 Wisconsin parties were routed to San Francisco; 5 to Yellowstone Park; 17 to New York and the East; and lately there have been calls for data on southern trips. During nice weather it was necessary to keep open Saturday nights and Sundays.

"It has occurred to me," says Ruddle, "that if more of these bureaus were started the exchange of printed matter and other information similar to folders issued by railroad companies for the benefit of their tourists could be adopted. The idea has much merit, in my opinion, after studying it for seven months. I will be able to improve on our methods next year in many ways and will be better equipped in the beginning of the second year than we are at the close of the first, because we will have a complete list of week-end tours covering two or three days, with the names of hotels, the garages in each place visited, and tours that will occupy from a week to ten days in Wisconsin. These will be gotten up during the coming winter. We will also undertake to secure the cooperation of state dealers for weekly bulletins on road conditions."

Robertson Now Dunlop Tire Distributer

NEW YORK, Nov. 13—George H. Robertson, up to recently president of the Auto Supply Co., and later eastern district manager for the Houk Mfg. Co., Buffalo, has become vice-president of Otto Braunschweig, Inc. This company is the American distributor of Canadian Dunlop tires.

Activity in Local Show Circuit Spreading Fast

Dealers Make Ready for Annual Exhibitions in Widely Separated Centers—Providence Already Under Way

Springfield, Mass., To Have Show

SPRINGFIELD, MASS., November 8—Plans have been completed for a motor show at this city during the week from December 6 to 11. It is to be held under the direction of Harry W. Stacy and F. W. Dart, in the Auditorium, and nearly all the available space has been taken. Those who have taken space, comprising about all the motor and accessory men represented here, comprise:

Williams Motor Sales Co., Dodge; Dimm Semmons Co., National and Jackson; Winton Motor Co., Winton; Springfield Buick Co., Buick; Bennett Motor Car Co., Maxwell, Harrington-Gifford Co., Hudson and Vim trucks; Springfield Automobile Co., Franklin; Western Mass. Cadillac Co., Cadillac; Forest Park Garage, Oldsmobile; Dunbar Motor Co., Oakland; Reo Springfield Automobile Co., Reo; Packard Motor Car Co., Packard; A. V. Reopell, Chevrolet; Locomobile Co. of America, Locomobile; Springfield Haynes Automobile Co., Haynes; P. W. Mynor, Kissel and Saxon; Winchester Motor Sales Co., Moline Knight; M. C. Barrett, Metz; Dunbar Motor Co., Krebs trucks; Auto Metal Co., tops; Springfield Harness Co., tops; W. H. and Webster Jones, Willard batteries; Standard Tire & Rubber Co., accessories; Auto Parts & Repair Co., accessories; Graves Hardware Co., accessories; Meyers Bros., accessories.

Baltimore Show Includes Accessories

BALTIMORE, Nov. 13—Owing to the numerous demands by dealers in accessories and supplies, the committee in charge of the show that will be held Jan. 18 to 22, has decided to set aside a big room in the Fifth Regiment Armory, where the show will be held, for the showing of accessories. H. M.

Luzius is general manager of the show and announced the following committees: Floor space—E. H. Myers and H. M. Luzius. Publicity—Thomas G. Young and A. S. Zell. Lighting and decorations—R. J. W. Hamill, W. H. Kneip, Joel G. Nassauer and John S. Bridges.

Providence Opens Its Show

PROVIDENCE, R. I., Nov. 12—The annual motor show of the Rhode Island Automobile Dealers Association, and the first motor exhibition of the season in the East, opened here this evening with 80 exhibitors, showing 45 passenger and 17 commercial makes. It will continue through until November 20, thereby giving seven days and eight nights to the show.

Duluth Show Opens in February

DULUTH, Nov. 11—Dealers here have formulated plans for the second annual motor car show, to be opened early in February. The first show, at the Auditorium last year, was so successful that dealers easily came to the decision to repeat the event with more extensive exhibits and equipment than a year ago. A definite date has not yet been decided on.

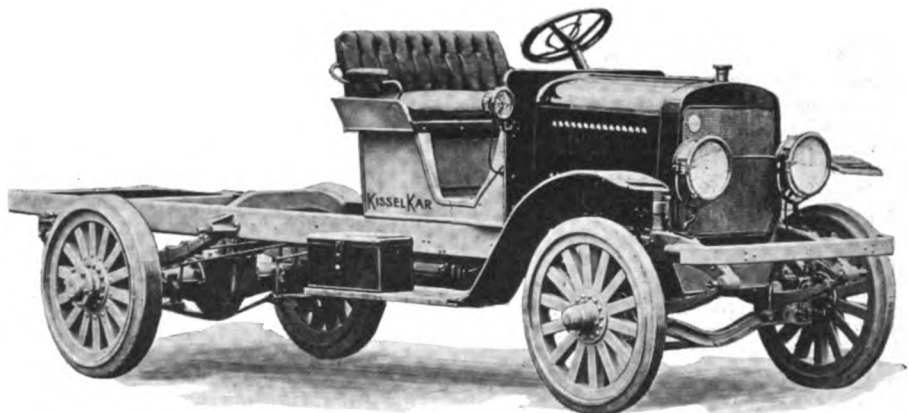
Cole Factory in Indianapolis

NEW YORK, Nov. 15—In the review of the paper read before the Indianapolis Section of the Society of Automobile Engineers by Chief Engineer Charles S. Crawford, of the Cole Motor Car Co., it was inadvertently stated that the Cole company is located in Detroit. The correct address is Indianapolis.

Weekly Installments Pay For Cars

BALTIMORE, Nov. 13—A new plan of selling cars is being tried out by the Briscoe Motor Sales Co., 1011 West North avenue. The plan provides for a small cash payment and additional weekly payments of \$8.

New Kissel One-tonner Has Worm-drive Axle



The newest Kissel truck is rated $\frac{3}{4}$ to 1 ton and is equipped with a David Brown worm; it sells for \$1,250. The block motor has four cylinders, $3\frac{1}{2}$ x $5\frac{1}{2}$, and drive is through a cone clutch and three-speed gearset. A standard express body is furnished for \$150 extra.

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

E. W. Gans has been appointed manager of the Indianapolis Studebaker district by the Studebaker Corp.

P. P. Hinckley has joined the sales force of the Connecticut Telephone & Electric Co. and will handle the jobbing trade east of Chicago. The jobbing connections in Chicago and the West will be managed by J. W. Fulton with offices at 1100 Karpen building, Chicago.

C. C. Ferry has been appointed sales manager of the Dellon Tire & Rubber Co., Trenton.

H. J. Nickolous, formerly with the Studebaker Corp., has been made secretary of the Newell Motor Car Co., St. Louis, Haynes distributor in eastern Missouri and southern Illinois.

Harry M. Gordon, for the past 19 years identified with the White Co.'s branch in Boston as purchasing agent, resigned last week to join the Boston branch of the Kelly-Springfield Tire Co.

Robert M. Ellis, for the past two years export manager of the Splittdorf Electrical Co. with headquarters in New York, has gone to Boston to assume charge of the company's branch there.

Harry R. Curtiss, for several years manager and treasurer of the Splittdorf Electrical Co.'s New England branch in Boston, has been appointed manager and treasurer of the Excelsior General Supplies Co., Chicago.

M. S. Wintrow has been appointed district sales representative by the Detroit Motor Car Co. He will work in conjunction with B. J. Corn, Indianapolis, in Indiana, Ohio and Kentucky territory.

W. McK. White, sales manager of the Esterline Co., Indianapolis, has resigned.

F. W. Wilkins, formerly manager of the Maxwell Motor Co.'s interests in Saskatchewan, has been made supervisor in western Canada, succeeding C. L. Acherson. Acherson has been transferred to Windsor, Ont., and given charge of the distribution for the whole of Canada.

R. C. Jones has been appointed sales manager of the Capital Auto Service Co., Washington, D. C., Regal dealer.

Harold R. De Laite, who has been identified with the Velle Motor Vehicle Co. for the past five years has been appointed manager of the Hampden county agency which the company has opened in Springfield, Mass., with salesrooms at 379 Worthington street.

Merrill T. White has been appointed manager of the new distributing station being erected for the Willys-Overland Co. in Springfield, Mass.

Sylvanus Jones, of Buffalo, has assumed charge of the Baltimore branch of the Double Mileage Tire Co. He succeeds Earle H. Ramsdell, who has gone to Rochester, N. Y., where he will establish a branch for the Double Mileage company.

Frederic H. Poor, who since the incorporation in December, 1909, of the S. K. F. Ball Bearing Co. of New York, has been its general manager, has recently severed his connection with that organization and has

opened an office of his own at 30 Church street, New York.

M. I. Husted, formerly connected with the United States Tire Co., has joined the sales force of the Ellason Bros. Motor Co., 8 East Chase street, Baltimore.

Mortimer C. Reeves has been appointed sales manager of the Chevrolet Motor Co. of New York, Brooklyn branch. His headquarters are 1505 Bedford avenue.

P. J. Eubanks has been placed in charge of the sales department of the Barley Mfg. Co., Streator, Ill., with jurisdiction over everything pertaining to the advertising and distribution of Halladay cars.

L. A. Safford, formerly Chicago manager of the Chilton Co., publishers, Philadelphia, has been made second vice-president of the McQuay-Norris Mfg. Co., St. Louis.

William B. Lakey, vice-president and general manager of the Lakey Foundry & Machine Co., Muskegon, Mich., has resigned to give all his attention to the Pressed Steel Co., which he organized recently.

Robert H. Martin has resigned as manager of the Washington, D. C., branch of the Bulck Motor Co. to become secretary-treasurer of the Southern Oakland Co., Atlanta, Ga.

Roy C. Fulcher has been elected president of the Colonial Automobile Co., Indianapolis, Marion, Imperial and Crow dealer.

F. I. Reynolds, formerly tire sales manager for the B. F. Goodrich Co., has been made manager of the automobile tire department of the United States Tire Co.

Harry N. Ravenscroft has been appointed sales manager at the Cleveland branch of the Anderson Electric Car Co.

E. G. Norris has been appointed Northwest district branch manager of the McQuay-Norris Mfg. Co., St. Louis. He will have supervision of Washington, Oregon, Idaho, Montana and British Columbia business, with headquarters in Seattle.

Frank Briscoe, brother of Benjamin Briscoe, president of the Briscoe Motor Co., has been appointed general manager, succeeding Horace De Lisser, who held that position and is vice-president of the company.

W. C. Morrey, manager of the timber department of the Hayes Wheel Co., has been promoted vice-president, and William C. Snyder and H. D. Hartley, Piqua, O., have become members of the board of directors.

Dealers Complain Against St. Louis Dimming Law

**Claim It Is Responsible for Increase in
Accidents Because of Insufficient
Light—Bright Lights a
Warning**

ST. LOUIS, Nov. 6—Accessory and supply dealers are making loud and bitter complaint against the St. Louis anti-glare headlight law, which they say is responsible for a decrease in their business as well as for the unusual number of automobile accidents which have occurred in this city since the dimmer ordinance went into effect.

The wholesale arrests of motorists whose lights did not comply with the new law, the accessory men say, have so frightened the owners of cars that many, ignorant of the exact requirements of the law, are operating their machines with dim lights, dash lights, and in many cases without any lights.

Insurance men have joined hands with the accessory dealers in condemning the ordinance which prohibits the use of lights whose rays are more than 3 ft. above ground at a distance of 75 ft. in front of the car. Companies which have placed liability insurance on motor cars have been besieged during the last few weeks as never before with claims for injury to persons and machines alike.

The law defeats its own purpose, in the opinion of the insurance and accessory men. It was adopted in the belief that dazzling headlights bewilder pedestrians and motorists coming from opposite directions. On the contrary, opponents of the law argue, glaring headlights warned pedestrians of the coming of an automobile when the machine was yet in the distance.

Dealer Factory Visitors of the Week

PAIGE-DETROIT MOTOR CAR CO.

J. W. Bray Ashtabula, O.
Geo. H. Bird, Bird-Sykes Co. Chicago
F. L. Clark, Belt G. & A. Co. Lead, S. D.
W. J. Foglesong, Belt G. & A. Co. Lead, S. D.
S. T. Longwell Ypsilanti, Mich.
Lenie Honaker, H. L. Gay Logan, W. Va.
C. L. Sturtevant, Paige T. M. C. Co. Toledo
F. M. Leary, Sterling M. C. Co. Indianapolis
A. L. Hill Port Huron, Mich.
C. A. Briel Louisville, Ky.
J. J. Schwab Louisville, Ky.
Eli Short Elmira, O.
R. E. Schultz, E. E. Schultz Barcelona, Spain
Geo. A. Dunlop Cadillac, Mich.
H. A. Porter Grand Rapids, Mich.
H. A. Beenblossom Grinnell, Ia.

PACKARD MOTOR CAR CO.

A. E. Gluck, Packard Motor Car Co. of N. Y.
H. M. Allison, Packard M. C. Co. of Chicago
Joseph H. Hart, Mandery M. C. Co. Rochester
Mrs. J. J. Mandery, Mandery M. C. Co. Rochester
R. E. Campbell, Packard-Cleveland M. Co.,
Cleveland
S. A. Luttrell, the Luttrell Co.,
Washington, D. C.
J. W. Smith Ft. Dodge, Ia.
F. S. Hipkins Ft. Dodge, Ia.

STUDEBAKER CORP.

Harvey Claypool, M. M. Powell & Co.,
Ashley, O.
P. J. Stanley Albion, Ind.
FRANKLIN AUTOMOBILE CO.
Cowles Tolman New Haven, Conn.
F. B. Heathman Dayton, O.
G. A. Boyer, John F. McLain Co.,
San Francisco
A. H. Clark, A. L. Clark Co.,
Bridgeport, Conn.
Nick Hughes, Hughes Garage Co.,
Paterson, N. J.
C. W. Shaffer Carthage, N. Y.
D. Prentice, Prentice A. Co.,
Great Falls, Mont.
Dr. W. G. Langley, Franklin M. C. Co.,
Dallas

S. H. Lewis Binghamton, N. Y.
Gilbert B. Perkins Brooklyn, N. Y.
A. G. Perretz Brooklyn, N. Y.

WESTCOTT MOTOR CAR CO.

Fred Folberth Cleveland
C. S. Burke Springfield, O.
C. B. Gordon New Lexington, O.
J. L. Wiese Champaign, Ill.
J. W. Tindall Hartford City, Ind.
Raymond W. Miller Tiffin, O.

CHASE ELECTS DIRECTORS

SYRACUSE, Nov. 15—Following the recent meeting of the Chase Motor Truck Co., announcing an increase of 218 per cent in its business, comes the announcement of the election of the following directors to serve for the ensuing year: A. M. Chase, president and general manager; Colonel A. C. Chase, Syracuse; L. O. Bucklin, president, Little Falls National Bank, Little Falls N. Y.; E. C. Witherby, general manager, Semet-Solvay Co., Syracuse; and H. P. Bellinger, general manager caustic department, Solvay Process Co., Solvay, N. Y. At a meeting to be held the first of December officers will be named.

Case Corrects Some Impressions

MILWAUKEE, Nov. 15—The J. I. Case T. M. Co., Racine, has issued a formal statement signed by B. M. Pettit, advertising manager, with reference to changes made in the official personnel as follows: "Owing to misleading notices in the press relative to changes in the executive organization of this company, we desire to state that the present officers of the company are as follows: President, Frank K. Bull; vice-president, Ellis J. Gittins, in charge of sales; vice-president, Milton H. Pettit, in charge of plants and production; treasurer, Warren J. Davis; secretary, William F. Sawyer; assistant treasurers, C. J. Farney and R. P. Howell; assistant secretary, Stephen Bull. In the election of Messrs. Gittins and Pettit to the offices of vice-president, we announce the promotion of two men who have for years been identified with this company."

Maxwell Expanding in Three Cities

DETROIT, Nov. 13—At all the Maxwell plants in Detroit, Newcastle, Ind., and Davton, O., extensive enlargement and extension work has been started, the Maxwell Motor Co. contemplating increasing its daily production, which now averages 250 cars or better, to 500. The biggest addition is being put up at the Oakland avenue plant, Detroit, which will consist of a one-story building 860 x 130 ft., to be devoted exclusively to assembly.

New Disco Company Increases Output

DETROIT, Nov. 16—The Disco Electric Starter Co. has been taken over by The Disco Electric Starter Corp., just formed and capitalized at \$250,000. The plant will be enlarged and its production facilities greatly increased. The new officers of the company are: President, S. W. Elston; vice-president, J. F. Johnson; secretary-treasurer, Sal Meyer; sales manager, Manzell Hackett.

Olds Drops Price of Eight \$100

LANSING, MICH., Nov. 15—The Olds Motor Works has reduced the price of its eight-cylinder model from \$1,295 to \$1,195. The first shipment of cars is now en route from the factory. The reduction comes as a result of increased production.

Canadian Dort Company Formed

CHATHAM, ONT., Nov. 6—Capitalized at \$500,000, of which \$300,000 is paid up, the Gray-Dort Automobile Co. has been organized here to make the Canadian Dort cars. The new concern takes over the Canadian Dort business and has taken over the old Campbell plant for manufacturing purposes. Robert Gray, of the Gray-Campbell Co., and J. D. Dort, who has been president of the

Factory News of the Week

Dort Motor Car Co., Flint, Mich., are the heads of the new company. F. Knight will be superintendent. Frank Averill has also come here from Flint to join the new organization.

NEW ABBOTT SIX

DETROIT, Nov. 15—The Consolidated Car Co. has made public the first details of a new six-cylinder Abbott-Detroit which will sell for less than \$1,200. It will be a seven-passenger car with a wheelbase of 122 in. and equipped with a Continental 3/4 x 4 1/2 block motor with a detachable cylinder head; springs are semi-elliptic front and rear and power is transmitted through a dry plate three-disk clutch and three-speed gearset. The car will be styled Model Six-44.

TOURAINÉ BECOMES VIM

PHILADELPHIA, Nov. 15 — The Touraine Co., which produces Vim delivery cars, has applied for an amendment to its charter changing its name to the Vim Motor Truck Co. The company is devoting itself exclusively to the production of Vim delivery cars in one chassis model mounting seven types of body.

Overland Redeeming Stock

NEW YORK, Nov. 12—The Willys-Overland Co., Toledo, will redeem the whole of its preferred stock at 110 per cent of par, plus accrued dividends. Each holder is requested to present his certificate of stock at the office of William Salomon & Co., 25 Broad street, New York, on Jan. 13. After that date dividends will cease on the stock.

Reo Car Surplus \$3,661,802

LANSING, Nov. 13—On Aug. 31, 1915, at the end of 10 months of its fiscal year, the Reo Motor Car Co. had \$3,661,802.20 surplus, or \$1,969,720.20 more than at the end of 12 months of its 1914 fiscal year. During the same period of 10 months, the cash on hand or in banks totaled \$2,390,951.60 as compared with \$738,145 in 1914, meaning an increase in cash disposable of \$1,652,806.60. The assets total \$7,373,995.99, while for 12 months in 1914 they totaled only \$5,120,782, an increase of \$2,253,213.99 in favor of the current year. These assets include cash, notes and accounts receivable, less reserves, \$582,176.46 instead of \$684,184 in 1914; inventories, \$1,957,708.74, as compared with \$1,923,212 in the previous fiscal year. The capital assets are recorded for a total of \$2,427,592.45, while in 1914 they totaled \$1,765,989. Investments total \$3,000 and deferred charges \$12,565.74. Among the liabilities, capital stock remains at \$3,000,000; current liabilities total \$712,192.79; accounts payable, \$653,637.27, as compared with \$368,407 in 1914; surplus, \$3,661,802.20.

Vanderlip Becomes S. K. F. Director

HARTFORD, Nov. 11—Frank A. Vanderlip, president of the National City Bank, New York, has been elected a director of the S. K. F. Ball Bearing Co., Hartford.

HYATT DOUBLING CAPACITY

NEWARK, N. J., Nov. 13—The Hyatt Roller Bearing Co. will increase its capital stock from \$400,000 to \$6,000,000, the increase being necessitated by extensions to the factory both in buildings and equipment. Four new buildings are under construction, as follows: One eight-story building 90 x 115 ft., which is nearly completed; one eight-story building 75 x 200; one one-story building 125 x 200; and one eight-story building 75 x 200. Construction work is just beginning on the last three buildings. These buildings will double the capacity of the Hyatt factory.

Reo Truck Assets \$1,409,251

LANSING, Nov. 13 — During 10 months of the fiscal year 1915, or up to Aug. 31, the balance sheet of the Reo Motor Truck Co. shows assets to be \$1,409,251.09, or an increase of \$231,510.09 over the 12 months' record of 1914. The cash balance, which was \$266,242 in 1914, shows a total of \$656,616.42 this year. Bills receivable totaled \$191,435.95 against \$73,027 in 1914. Inventory is recorded at \$349,912.35, or \$40,000 more than last year. The item of tools, machinery, etc., is credited with \$102,884.51 as compared with \$96,553 last year.

Among the liabilities, the outstanding capital stock is unchanged at \$937,500; bills payable total \$200,179.67 instead of \$142,479 last year; accrued pay roll totals \$9,652.07, prepaid expenses, \$6,488.61 and the surplus is shown to be \$250,680.74 as compared with \$91,062 last year.

Ford Reduces Winter Car Prices

DETROIT, Nov. 16—The Ford Motor Co. has reduced prices on its sedan and coupelet. The sedan, which formerly was \$975, is now \$740, a reduction of \$235. The body sells separately for \$400. The coupelet is reduced from \$750 to \$590, a reduction of \$160. This body sells for \$250.

The runabout remains \$390, the touring car \$440 and the chassis \$360. The sedan and coupelet are not of the detachable type. Each is a complete body in itself. Both fit the standard Ford chassis. Deliveries on this winter's cars are just beginning. All prices are f. o. b. Detroit.

Low-priced Cars from Pittsburgh

PITTSBURGH, Nov. 16—Headed by E. E. Gregg, a company is being formed here to manufacture and market a car which, it is stated, will be within the reach of clerks, business men and persons in ordinary circumstances. Further details have not yet been divulged, pending the formation of the company, which during the organization period is styled The Motors Co. of Pittsburgh. Offices are at 704 Oliver Building. Edward T. Birdsall is credited with having designed the car, which will be produced in a factory shortly to be in operation. Both touring and roadster models will be manufactured.

Sun to Move to Elkhart

BUFFALO, Nov. 16—The Sun Motor Car Co. is said to be preparing to move its plant to Elkhart, Ind. The concern is stated to have purchased for \$25,000 the plant of the Sterling Motor Car Co. The capitalists who are interested in the company are also interested in the Haynes Automobile Co., Kokomo. The Sun company expects to begin operations about Jan. 1.

PEERLESS TO CONTINUE SEPARATELY WITHOUT CHANGE

CLEVELAND, Nov. 15—The Peerless Motor Car Co., a majority of the stock of which was recently acquired by the Peerless Truck & Motor Corp., which also secured control of the General Vehicle Co., will continue as it has in the past, maintaining a separate corporate existence. It will manufacture the eight-cylinder Peerless car and will also manufacture a regular line of Peerless trucks, to which a new 2-tonner soon will be added. The present executive force, sales and factory organization, will be continued without change. The Peerless Motor Car Co. will be represented on the board of the Peerless Truck & Motor Corp. by L. H. Kittredge, president of the Peerless Motor Car Co., B. G. Tremaine, and F. S. Terry, all of the Peerless company.

Gunn Heads U. S. Tire

NEW YORK, Nov. 4—J. N. Gunn has been chosen as the new president of the United States Tire Co. in full charge of manufacturing and selling. He has also been appointed assistant to the president of the United States Rubber Co., of which the tire company is a subsidiary. E. S. Williams resigns the presidency of the tire company in order to devote most of his attention to the mechanical rubber business of the United States Rubber Co.

S. P. Colt president of the United States Rubber Co. states that earnings this year will not be as large as in 1914. He states that it is costing that company considerably more to make tires now than it did in the early part of the year. The cost of fabric used by this company in the make-up of tires is probably 20 per cent higher than at the start of the year. Crude rubber is about 6 cents higher than then. Some other articles used in the manufacture of tires are no higher, but the materials used average in the neighborhood of 10 per cent more than a year ago.

To Make 20,000 to 30,000 Argos

JACKSON, Nov. 6—The Argo Motor Co. has acquired the plant and land of the old Standard Electric Co., which it has been occupying. It is expected that arrangements will be made to enlarge the manufacturing facilities of the company, it being contemplated to build between 20,000 and 30,000 Argo cars for the season of 1916. In connection with the contemplated expansion, it is announced that the Jackson Motor Parts Co. has been organized and incorporated. Its capital stock is \$210,000. This concern will make principally parts for the general trade. L. E. Latta, vice-president and general manager of the Argo company, has been appointed president and general manager of the new parts company. L. E. Wilson, Chicago, is now managing the Argo business, and Stanley Whitwarth, Indianapolis, has become production manager.

New Electromobile Regime

ST. LOUIS, MO., Nov. 6—The Electromobile Co., makers of an electric indoor truck, has consolidated with the Orenstein-Arthur-Koppel Co., Koppel, Pa., according to an announcement made here today by S. J. Bernheimer, president of the local company. Hereafter the Koppel firm will manufacture the truck and the Electromobile company will market the product in the Southwest. The latter company will continue to make headquarters here.



*Indicates sanction by A. A. A.

- Nov. 20.....Phoenix, Ariz., 150-mile track meet.
- Nov. 29-Dec. 4..Omaha, Neb., Track race-meet.
- Dec. 9.....Des Moines, Ia., Convention, Iowa Retail Automobile Dealers Assn.
- Jan. 7, 8, 10, 11..New York, Meeting National Assn. of Automobile Accessory Jobbers.
- Jan. 25.....Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
- Jan. 26-27.....Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
- Feb. 21-26.....Countrywide Electric Prosperity Week.
- May 13.....New York City, Sheepshead Bay Speedway race-meet.
- May 30.....Indianapolis, Ind., Track race-meet.
- June 17.....Chicago, Ill., Speedway race-meet.
- June 28.....Des Moines, Ia., Speedway race-meet.
- July 4.....Minneapolis, Minn., Speedway race-meet.
- July 4.....Sioux City, Ia., Speedway race-meet.
- July 15.....Omaha, Neb., Track race-meet.
- Aug. 5.....Tacoma, Wash., Track race-meet.
- Aug. 18-19.....Chicago, Ill., Elgin road race.
- Sept. 4.....Des Moines, Ia., Track race-meet.
- Sept. 15.....Indianapolis, Ind., Speedway race-meet.
- Sept. 16.....Providence, R. I., Track race-meet.
- Sept. 30.....New York City, Sheepshead Bay Speedway race-meet.

THE SHOW CIRCUIT

- Nov. 12-20.....Providence, R. I., Show, Automobile Dealers Assn., State Armory.
- Nov. 17-20.....Pasadena, Cal., Show, Hotel Maryland.
- Nov. 22-27.....Binghamton, N. Y., Annual Show, Binghamton Automobile Dealers Assn., State Armory.
- Dec. 6-11.....Springfield, Mass., Show, Auditorium. H. J. Stacy, manager.
- Dec. 31-Jan. 8..New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
- Jan. 3-9.....New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
- Jan. 8-15.....Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn., Convention Hall.
- Jan. 8-15.....Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
- Jan. 17-24.....Wilmington, Del., Second Annual Show, Wilmington Automobile Trade Assn., Hotel Du Pont. J. H. Nixon, chairman.
- Jan. 17-22.....Rochester, N. Y., Show, Exposition Park. C. A. Simmons, manager.
- Jan. 18-22.....Lancaster, Pa., Show, Conestoga Park Pavilion.
- Jan. 18-22.....Baltimore, Md., Show, Baltimore Automobile Dealers Assn., Fifth Regiment Armory.
- Jan. 22-29.....Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.

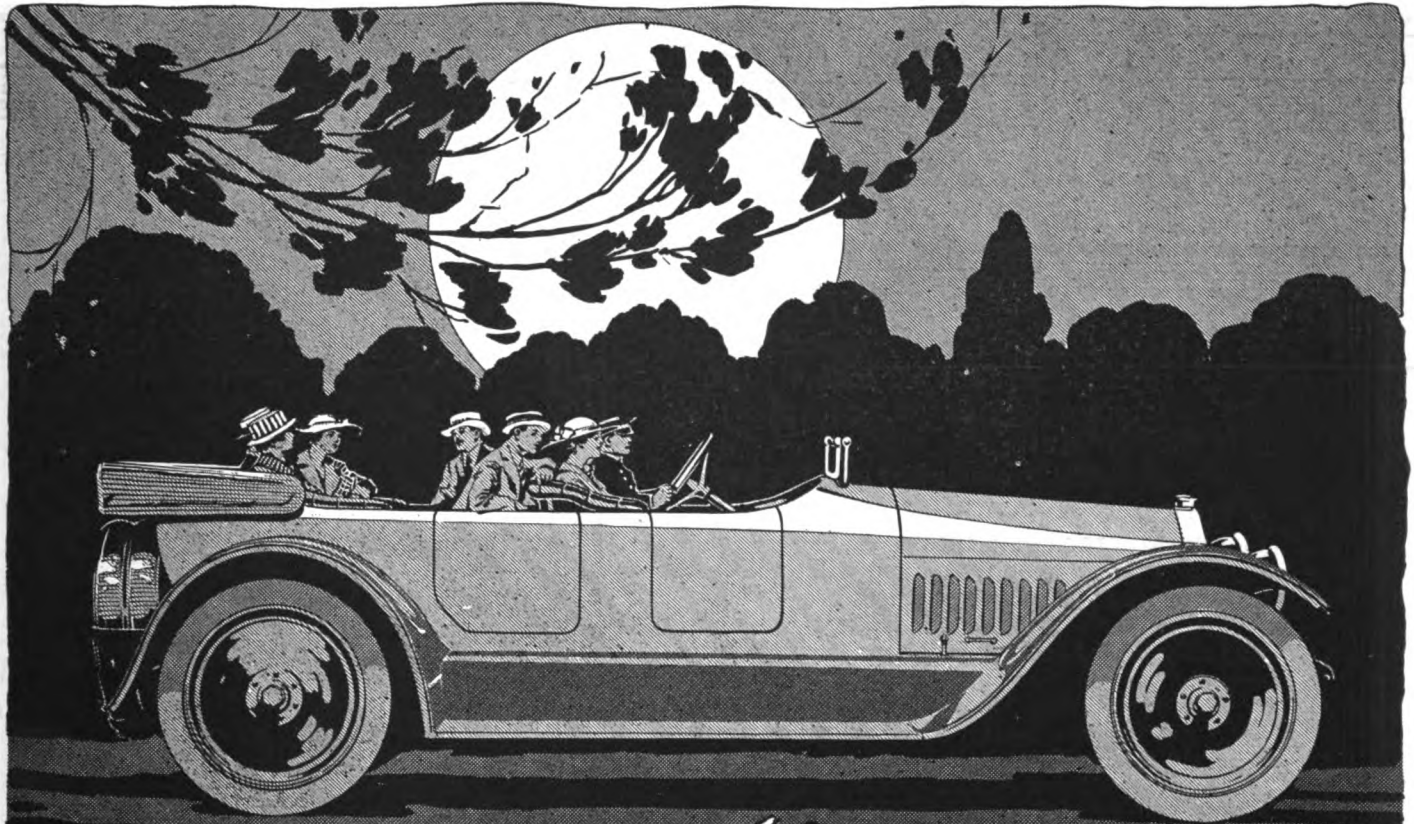
- Jan. 22-29.....Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 23-30.....Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.
- Jan. 24-29.....Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
- Jan. 29-Feb. 5..Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
- Jan. 29-Feb. 5..Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
- Feb. 7-12.....Kansas City, Mo., Show, Kansas City Motor Dealers Assn., Convention Hall.
- Feb. 9-12.....Peoria, Ill., Show, Peoria Automobile & Accessory Assn., Coliseum.
- Feb. 14-19.....Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
- Feb. 19-26.....Newark, N. J., Show, First Regiment Armory. C. L. Fitzgerald, manager.
- Feb. 20-27.....Grand Rapids, Mich., Seventh Annual Show, Grand Rapids Auto & Accessory Dealers Assn., Klingman Bldg.
- Feb. 21-26.....Louisville, Ky., Show, Louisville Automobile Dealers Assn., Kentucky First Regiment Armory.
- Feb. 21-26.....Omaha, Neb., Eleventh Annual Show, Omaha Automobile Assn. Clark G. Powell, manager.
- Feb. 21-26.....Syracuse, N. Y., Show, Syracuse Automobile Dealers Assn.
- Feb. 21-26.....South Bethlehem, Pa., Show, Coliseum. James L. Elliot, manager.
- Feb. 29-Mar. 4..Fort Dodge, Ia., Fifth Annual Show, Fort Dodge Auto Dealers Assn., Terminal Building.
- March 4-11.....Boston, Mass., Fourteenth Annual Show, Boston Automobile Dealers Assn., Boston Commercial Vehicle Assn.
- Mar. 28-Apr. 3..Manchester, N. H., Show, under auspices of Couture Bros.; Academy.

Motor Car Securities Quotations

No quotations for the corresponding date in 1914 are available because of the closing of the Stock Exchange due to the foreign war situation.

	Nov. 13, 1915	Bid	Asked
Ajax-Grieb Rubber Co., com.....	300	..	..
Ajax-Grieb Rubber Co., pfd.....	101	..	..
Chalmers Motor Co., com.....	150	160	160
Chalmers Motor Co., pfd.....	102	105	105
Chevrolet Motor Co.....	123	127	127
General Motors Co., com.....	392	396	396
General Motors Co., pfd.....	112½	113½	113½
B. F. Goodrich Co., com.....	73	75	75
B. F. Goodrich Co., pfd.....	111	111½	111½
Goodyear Tire & R. Co., com.....	328	335	335
Goodyear Tire & R. Co., pfd.....	110	112	112
International Motor Co., com.....	38	40	40
International Motor Co., pfd.....	64	68	68
Kelly-Sprgfd Tire Co., com.....	295	305	305
Kelly-Sprgfd Tire Co., 1st pfd.....	93	96	96
Kelly-Sprgfd Tire Co., 2nd pfd.....	75	76	76
Maxwell Motor Co., com.....	78	82	82
Maxwell Motor Co., 1st pfd.....	101	103	103
Maxwell Motor Co., 2nd pfd.....	61	62	62
Miller Rubber Co., com.....	249	252	252
Miller Rubber Co., pfd.....	109½	110½	110½
Packard Motor Car Co., com.....	131	135	135
Packard Motor Car Co., pfd.....	100	102	102
Paige-Detroit Motor Car Co.....	550	..	..
Peerless Motor Car Co., com.....	41½	42½	42½
Peerless Motor Car Co., pfd.....	92	96	96
Portage Rubber Co., com.....	80	85	85
Portage Rubber Co., pfd.....	98	100	100
Regal Motor Co., pfd.....	17	..	..
*Reo Motor Truck Co.....	49	24½	24½
*Reo Motor Car Co.....	8	51	51
Stewart-Warner Speed. Corp., c. 82	..	84	84
Stewart-Warner Speed. Corp., p. 106	..	..	..
Studebaker Corp., com.....	162	164	164
Studebaker Corp., pfd.....	111	113	113
Swnehart Tire & Rubber Co.....	89	91	91
U. S. Rubber Co., com.....	54	56	56
U. S. Rubber Co., 1st pfd.....	106	108	108
White Co., pfd.....	110	..	..
Willys-Overland Co., com.....	247	249	249
Willys-Overland Co., pfd.....	111	112½	112½

*Par value \$10; all others \$100 par value.



National

"HIGHWAY"

6 \$1690

12 \$1990

Why?

Why have National sales increased more than 50%?

Why have double the number of business men learned the wisdom of becoming National leaders?

Why is every National owner proud and enthusiastic?

Why has the National factory been forced to erect new buildings to care for the steady increase in business?

Are you a car owner? Then write and we will tell you why. It will save you money.

Are you a dealer? If so, write us. It will make you money.

The "Why" is not a happen-so—it is the logical and inevitable result. Write today.

NATIONAL MOTOR VEHICLE CO.

INDIANAPOLIS, INDIANA

Newport Six—\$2375

MASTER

ONLY two motor car manufacturers so far have adopted Master Carbureters as regular equipment on the cars they produce.

The stumbling block has always been—the price.

The Master costs more.

The two cars upon which you will find Master Carbureters as regular equipment are—

The Austin—probably the highest grade, most perfectly built and highest priced car in America—and

The new Owen Magnetic—the car that has been making such marvelous efficiency records recently in the East.

It is a significant fact, however, that while you won't find the Master on a great many cars as regular equipment—you will find it with amazing frequency on the personal cars of motor car officials, engineers and dealers.

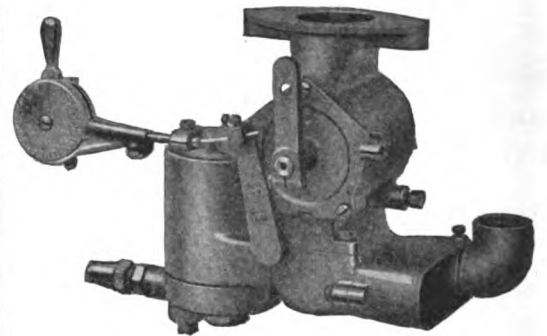
You will find it on the cars of prominent race drivers and on cars that are undergoing special tests for power, speed and economy.

Wherever maximum efficiency is required—there you will find the Master Carbureter.

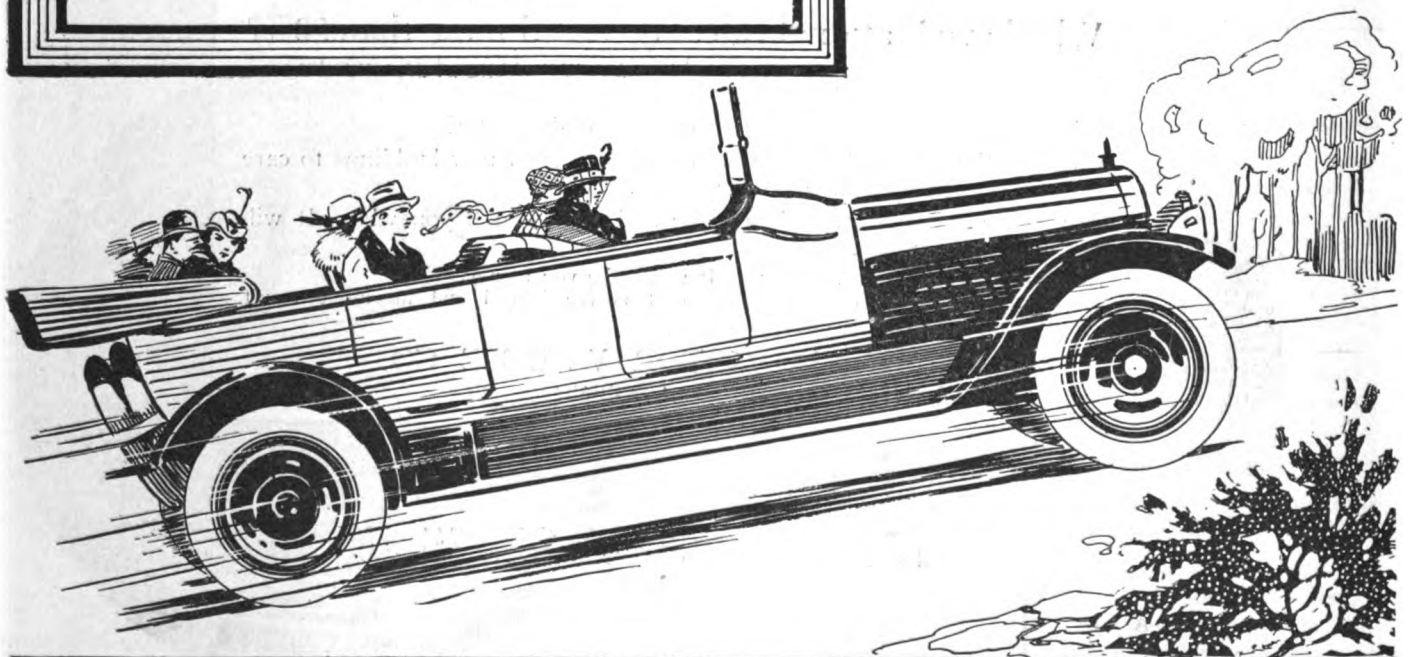
Over 3000 Master Carbureters a month are being sold to individual owners.

The Master Dealer Proposition is Particularly Attractive—Write for It.

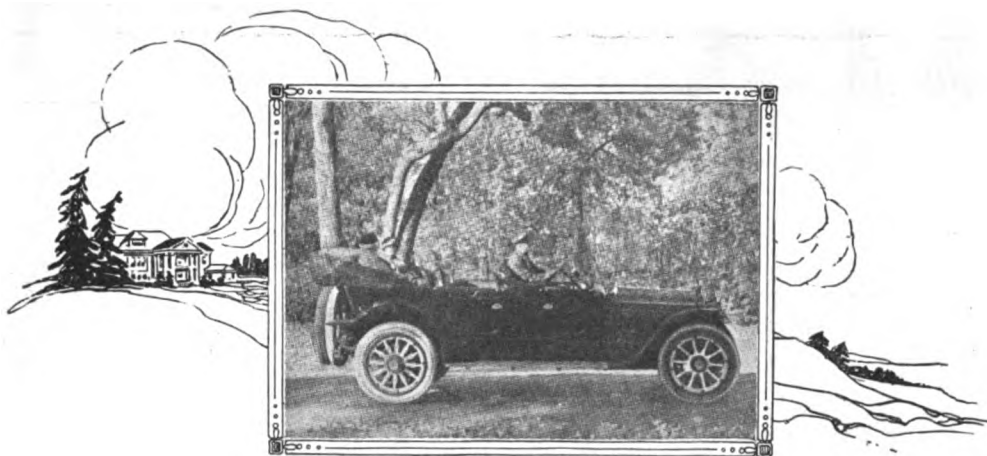
The Master Carbureter Corporation
1115 Fort Street, Detroit



**MORE POWER
MORE SPEED
MORE MILES
Per GALLON**



When writing advertisers please mention Motor World



While the Waltham automobile clock cannot be considered costly, nevertheless it is possible to buy a makeshift timepiece very much cheaper. Therefore, the automobile manufacturer who equips his cars with Walthams shows that he considers his car worthy of the best, and also insures for the owner perpetual accuracy.

Waltham Automobile Clocks

is the first and only timepiece designed especially for automobiles. It has two mainsprings and is proof against the vibration of road use. It will run eleven days with one winding, and there is a little red signal which appears on the dial three days before the movement is run down.

There are various styles of casing and dial. Write for our booklet "Concerning a Time Piece."

The following cars use our clocks as regular equipment:

Brewster	Marmon
Cadillac	Owen Magnetic
Cole	Packard
Crane	Pierce-Arrow
Detroit	Rauch & Lang
Franklin	Rolls-Royce
Haynes	Russell-Knight
Jeffery	Simplex
Locomobile	Stearns
Lozier	Winton

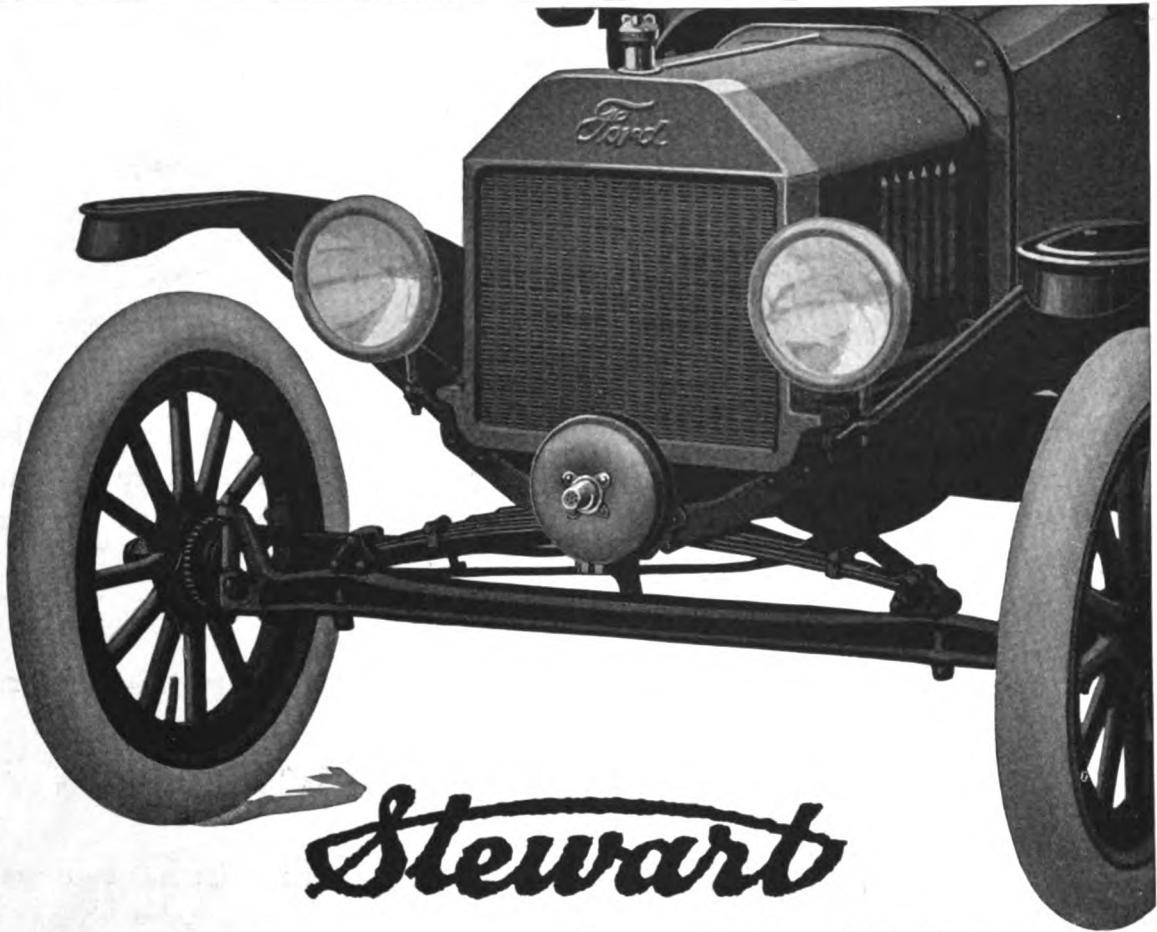
The following companies equip *all* their enclosed bodies with our timepieces:

Brewster	Locomobile
Cadillac	Packard
Franklin	Pierce-Arrow
	Stearns

Waltham
Watch Company
Waltham
Mass.



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Stewart **Starter for FORD CARS**

The first practical air-starter, built only for FORD cars.

Starts the engine from the seat.

Absolutely automatic.

Weighs only 40 lbs., and evenly balanced in center of car.

Cranks the engine exactly as you would by hand, but faster and surer.

Air pressure on hand at all times to fill your tires.

For Sale by
Any Dealer

\$40

Stewart-Warner Speedometer Corporation, Chicago, U. S. A.

MOTOR WORLD

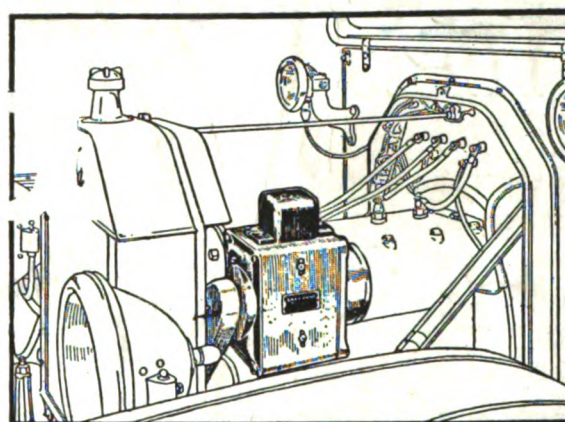
for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 8

New York, November 24, 1915

Ten cents a copy
Two dollars a year

It Is
Nearly
a Year—



since the Gray & Davis system for Ford cars was introduced. During that time over 30,000 systems have been sold and installed. During that time 30,000 FORD owners have experienced a new delight in motoring. During that time dealers, supply men, etc., have added to profits by handling this popular equipment. And the sale of FORD systems during 1916, will be larger than ever before.

Dealers will do well, therefore, to consider this proposition carefully. We will be pleased to furnish full particulars upon application.

GRAY & DAVIS

STARTING - LIGHTING SYSTEM

Boston

Mass.

The Black Tread and Red Side Wall

Is Now the Distinctive
Trade-Mark of

Firestone
TIRES

THIS design and color combination is an added feature to the many "extra values" which have meant "Most Miles per Dollar" to Firestone tire users during past 16 years.

It combines appearance with sturdiness and adds a touch of elegance to your car.

The Firestone Tire is the product of specialists in buying—specialists in building—specialists at distribution—and this concentration of purpose enables us to offer you this attractive "black tread and red side wall" tire at no advance in price.

Firestone Tire & Rubber Co.

"America's Largest Exclusive Tire and Rim Makers"

Akron, Ohio

Branches and Dealers Everywhere



The reason I am a Studebaker Dealer



"When I decided to enter the retail automobile field, the most important consideration of all was the choice of the RIGHT manufacturer. For I was looking not for a chance merely to "sell cars" — but for an opportunity to build a successful and ENDURING business.

"After thorough investigation, I became convinced that Studebaker with its wonderful financial resources, experience and unexcelled

manufacturing facilities was one of the few companies that absolutely insure success to a man capable of conducting a large business.

"To-day when I look back over this present season and find that in spite of keener competition than ever before, my business has increased 50% over any previous season, I feel more convinced than ever of the wisdom of my choice of the RIGHT manufacturer—Studebaker

Joseph S. Donovan
Donovan Motor Co., Boston, Mass.

Four Cylinder Models

Touring Car, 7-passenger . .	\$ 885
Roadster, 3-passenger . . .	850
Landau-Roadster, 3-pass. . .	1185
Panel Delivery Car	875
Open Express Car	850
Station Wagon	875

STUDEBAKER

South Bend, Ind. Detroit, Mich. Walkerville, Ont.

Address all correspondence to Detroit

Six Cylinder Models

Touring Car, 7-passenger . .	\$1050
Roadster, 3-passenger . . .	1000
Landau-Roadster, 3-pass. . .	1350
Coupe, 4-passenger	1550
Limousine, 7-passenger . .	2250
F. O. B. Detroit	

FISK NON-SKID

The Fisk Tire User Sends You New Customers

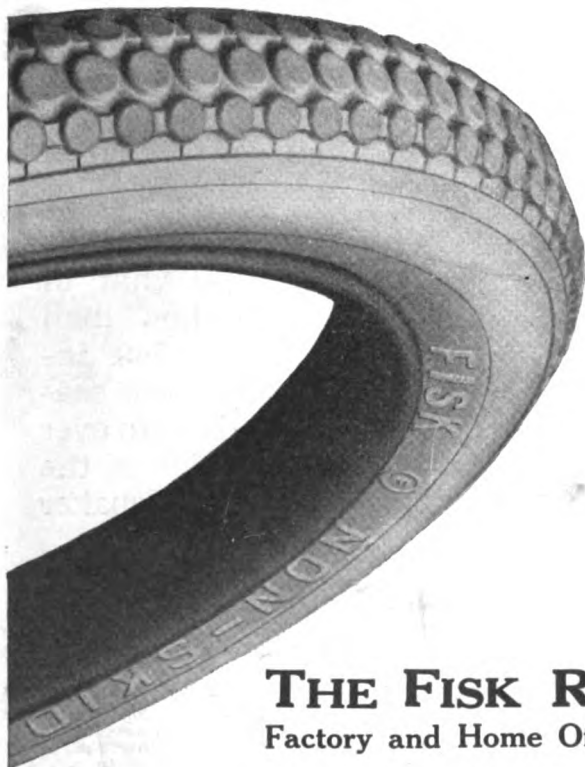
A growing business rests upon the new customers it makes quite as much as on the retention of the satisfied old ones.

Three things will send new customers to you:

First: Your reputation as a dealer who handles good products which are in demand.

Second: The wide and intelligent advertising of those products, and

Third: The satisfaction which users of those products have with them.



Fisk Non-Skid Casing Prices

3½ x 30 - \$12.20 4½ x 34 - \$27.30

4 x 33 - 20.00 4½ x 36 - 28.70

4 x 34 - 20.35 5 x 37 - 33.90

*Fisk Plain Tread Prices are 5%
lower than Non-Skids*

This has been a wonderful year for Fisk Tires. Thousands of new owners have become habitual users. They have found the Fisk Tire a solid satisfaction to them, bought at a price which was fair and remarkably low, and they have had the comfortable assurance of the Fisk ideal of service back of every tire. These men will send you hosts of new customers.

Write Dept. 23 for the
Fisk Dealer Proposition

THE FISK RUBBER COMPANY

Factory and Home Office

Chicopee Falls, Mass.

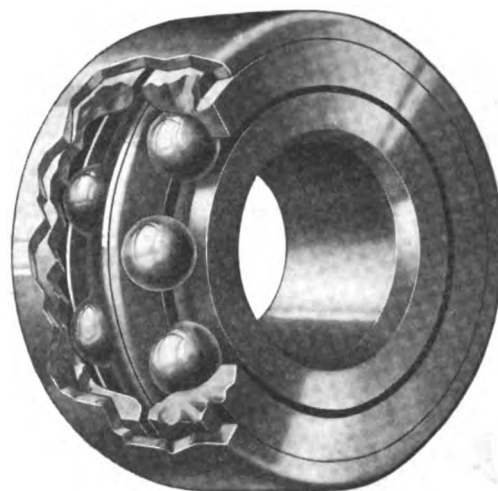
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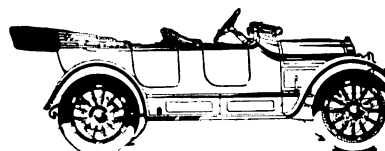
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MOTOR WORLD

JOBBERs, DEALERs, AND GARAGEMEN

Vol. XLV

New York, U. S. A., Wednesday, November 24, 1915

No. 8

The Motor World Simplified System of Accounting

For Dealers and Garagemen—All in One Book, Under One Cover

(Copyrighted by the Motor World Publishing Co.)

Instalment No. 1

Read This First

THIS is the first instalment of the series of articles on the Motor World Simplified System of Accounting for dealers and garagemen. The other five instalments will follow weekly.

With this instalment is a supplement consisting of two forms, Nos. 1 and 2. Preserve these for reference. They will be referred to all the way through the series.

SAVE THEM!

And every time mention is made of any part of a form, turn at once to the supplement and make sure you understand what has been said.

If you do not understand each step ask Motor World's System Editor and advice will be freely given.

The system was devised especially for the garageman and dealer. It is not a rebuilt grocery store system. It has been more than a year in preparation and is very simple.

For best results you should follow each article and study it as you used to study in school. Keep the forms that are with this week's issue, refer to them constantly.

Now read Instalment No. 1, beginning on this page.

THE Motor World Simplified System of Accounting is what is known as a Double Entry system. Double entry means just what it says, two entries for every transaction.

What An Entry Is

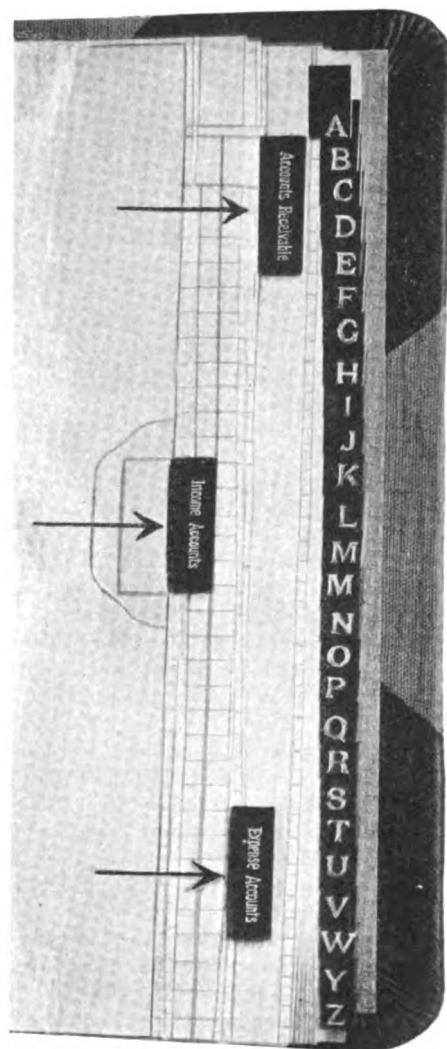
An entry is a record on a page of the book. It is a written record. When



THE ONLY BOOK needed in the system is shown here. It is 14½ x 11½ in. The picture at the right shows the index division tabs. Form 1 goes under the center arrow. Form 2 under the lower arrow and Form 3 under the upper arrow

you buy a bushel of potatoes from the grocer and he goes to your page in his book and writes down the fact that you got a bushel of potatoes, he has made an entry. He has written something in the book. If he makes two records when you buy the bushel of potatoes he has made a double entry.

Every transaction in any business has



a twofold effect on that business. Let us explain this twofold effect, which is the cause of double entry.

What Double Entry Is

Suppose you buy gasoline and put it into the storage tank. When you buy this gasoline your gasoline stock increases and your cash decreases. Here are two effects or changes, one in the gasoline stock and the other in the cash. When you record both you have made two entries on the books; therefore a double entry.

The purchase is entered on one side of the book under the gasoline account, and is then entered on the other side under the cash account. Two entries have been made; hence double entry accounting.

What Accounting Is

Accounting is nothing more or less than the story of your business. The story is written by setting down the various things that occur in your business. The story is also written on special paper—called forms—and in such a way that by going back and reading the story you can tell all you want to know about what has happened in your business. The things you want to know are such things as whether the repairshop made money last month, or how much cash you took in last Tuesday. The term bookkeeping used to be employed to describe this work, but with modern methods has come the better term "accounting," which is a truer description of the work.

Debit and Credit

Since we use two entries for each transaction we use two words that are the warp and woof of accounting. These words describe the two entries. The words are Debit and Credit.

Debit means "to receive benefit."

Credit means "to give benefit."

Let us go back to the gasoline transaction, wherein gasoline was bought and put into the tank, and let us apply the words Debit and Credit. When you BUY gasoline and INCREASE the stock in the tank the stock "RECEIVES BENEFIT," does it not? Therefore, you turn to the gasoline stock column and "DEBIT gasoline" with so many gallons. You make the entry on the DEBIT side of the page under the gasoline account.

At the same time, as was explained before, the CASH is DECREASED. It "GIVES BENEFIT." So you "CREDIT cash" with the price you paid for the gasoline. The entry is made on the CREDIT side of the page under the CASH account.

You have now made two entries, a Debit entry and a Credit entry. It is not difficult, is it?

Turn to the supplements which are inserted in this issue of Motor World—

called Form 1 and Form 2—on which are reproduced the two pages from the Motor World Simplified System of Accounting.

At the top of the left hand side of each form is written the word Debits.

Across the top of the right hand half is the word Credits.

In accounting one side is always Debits and the opposite side Credits.

There is no reason why the Debits should be on the left and the Credits on the right. It is just because accountants have made it a practice to have Debits on the left and Credits on the right. For that reason Motor World follows the fashion. The left side is Debits and the right side Credits.

Why Double Entry

Our reason for using double entry is that it is more accurate. As you must enter each transaction twice, once on the left or Debit side and once on the right or Credit side, the total of one side must equal the total of the other. If the work is correctly done and if the total Debits equals the total Credits we say "your books are in balance," meaning that the two totals agree.

The fact that the Debits and Credits must balance is an excellent check on accuracy. The two sides can be added each day, week or month. You can balance your books as you desire. If the

two totals do not agree you have made some error. You may have entered a transaction on the Debit side of one account and forgotten to enter it on the other, or you may have entered it on the Debit side twice, or on the Credit side of both accounts. This double entry system checks your accuracy, and that is why Motor World has adopted double entry.

All In One Book

The system has been put in one book, under one cover, to make the work simple. The more books there are the more complicated and hard to operate is the system and the more work there is to it. In some systems there are ledgers, journals and numerous other books, and if the entries are not kept up in all these books the system will not work. Also, it adds to the difficulty of the accounting.

No Bookkeeper Necessary

It is not necessary to have an accountant or bookkeeper to operate this system. One may be employed, if desired, but because so many garage businesses are small and are operated practically by one man the system has been made simple and easy enough for this one man. He can operate his business and the system, too. You need a fountain pen, a bottle of ink and a package of blotters.

Only Three Forms Are Used

In this system are three forms. They are:

FORM 1 (See Supplement)—Cash Receipts and Sales Record. It is for the entry of your income, or earnings, and the cash that is taken in. This form goes in the front of the book.

FORM 2 (See Supplement)—Paid Cash and Expense Record. This is for the entry of your expenses and the cash you pay out. This follows Form 1 in the book.

FORM 3—This is not illustrated this week. It is a form for the setting down of each individual customer's account. On one sheet you will carry, for instance, the account of John Jones. This sheet is so simple that it needs but a few words of description and will be shown and described later in the series of articles on the system. This form goes at the back of the book, following Form 2.

Look now at Form 1, inserted loosely in Motor World as a supplement. First note the heading across the top, Cash Receipts and Sales Record. There seem to be two parts to this form and also Form 2, do there not? This is the case. Form 1, also Form 2, is in halves, and when the book is opened the halves lay out as one form, as shown by the sup-

plement. Follow the forms as you read.

Next note that the left half of Form 1 is labeled Debits and the right half Credits. Why this is done has been explained. Look at Form 2. The Debit side runs from the extreme left hand side across the whole left half of the form and across the other half to and including the column that is numbered 9, but not including No. 11 and those that come thereafter. Those are the Credits

Next note that there are different "accounts." These are divisions of the business. The Income Accounts, No. 8, Form 1, are the departments of the business. The same departments are on Form 2 as Expense Accounts.

At the bottom of each form note that the totals of the various columns are added up. Do not try to understand all the figures now, unless you are already familiar with accounting, for every figure and word on the forms will be explained in detail later.

Before going into a discussion of the entries on the forms it is well to have a thorough understanding of the headings and various columns. Then when we get into the system proper, in the next chapter, all the preliminary details will have been cleared away. Let us first take up Form 1.

Description of FORM 1

THE numbers which appear at the beginning of the following paragraphs appear at the top of the forms, in the small circles. For instance, when you begin to read the next paragraph, which is No. 1, you should turn to No. 1 at the top of Form 1 and follow the little arrow down to the column that is being discussed.

1—ALL OTHER ACCOUNTS. This appears in two places. It covers all accounts not included in the other divisions. It means just what it says. This column is for accounts other than INCOME and CUSTOMERS, such as allowance on repair bills, and others to be described later.

2—CUSTOMERS ACCOUNTS. These are **charge** accounts maintained with regular customers. You enter the name of the person making the purchase and at the left of it the amount of the purchase.

3—AMOUNT. This appears in four places. In each case it is the column for writing down the amount of money involved in the transaction that is recorded in that particular division. Under **CHARGE AMOUNT** in the **CUSTOMERS ACCOUNTS** division on the Debit side this column is the place for the amount that is charged to the customer. **CREDIT AMOUNT**, at the extreme right on the Credit side is for the amount the charge customer pays when he pays it.

4—EXPLANATION. This column in any account tells what the money is for, in other words, explains the entry.

5—NAME. This heading appears only under **CUSTOMERS ACCOUNTS** (2) and is, of course, for the name of the customer.

6—ALL CASH RECEIVED. This is one of the most important columns. Get the idea firmly in mind. **In this column goes every bit of cash that is taken in.** If gasoline is sold the cash received goes here; if money is borrowed, it is entered here; in fact, every bit of money that is taken in for any purpose whatsoever is entered in this column; even if it is picked up in the street.

REMEMBER THIS. This system has been made simple, but it will not work unless a few such simple directions as this are followed. **EVERY** item of cash that is taken in, borrowed, earned, found or otherwise, **MUST BE ENTERED IN THIS COLUMN.**

7—FROM WHOM RECEIVED. This is easy. You received cash, and under

this entry you put the name of the person or company from whom you received it. This column applies only to cash.

8—INCOME ACCOUNTS. Study these sub-headings—gasoline, oil, repairs, storage, car sales, accessory sales. They are the departments of your business. The sub-headings have been selected as those departments most generally existing in the garage and dealer business. If you, however, do not sell cars you may ignore the car sales column or may write in some department which is not listed.

9—GAS, OIL, GREASE. This is for setting down the money taken in or the sales made, even though they be charged. Since these three items are closely associated they have been listed as one department.

10—G SALES NO. Do not let this entry worry or confuse you. You may not need to use this column. It is assumed that there is beside the gasoline pump or elsewhere a little pad of sales slips on which an entry is made each time a sale is made, telling how much and to whom. These slips are numbered serially and this G SALES No. column is for the entry of these slip numbers. If used they are filed in a drawer somewhere, and the setting down of the serial number makes it possible to locate them later in case any dispute should arise with a customer.

11—REPAIRS. In this column go all the earnings of the repairshop, whether cash or charged. Every repair job done in the shop must be entered in this column.

12—R SALES NO. This column is for the number of the repair job ticket or order on which the work was done. Similar to G SALES NO.

13—PARTS AND ACCESSORIES. These are carried in one column. In case it is desired to keep separate record on the sale of accessories, this may be done, as will be explained later. But every time a part or accessory is taken out of stock its sale price is entered in this column, no matter whether the part is taken away by the customer in his hand or is taken to the shop and put on his car.

14—A SALES NO. This is the number of the accessory or part sales slip or shop requisition. As probably has been discovered by the reader, the G on a sales slip stands for gasoline. R for repairs, and A for accessories. When an accessory sale is made, the number of the sales slip must be entered in this column.

15—STORAGE. This covers the storage of cars in the garage. All storage earnings go here, whether monthly or nightly and whether cash or charged.

16—CAR SALES. This column is for the sale of cars, new and used. There

are no entries in this column. Car sales will be taken up later in the series as a separate article and explained fully. The use of this column will be explained then.

17—MISCELLANEOUS. This is for miscellaneous income. It covers earnings that are not made very often and for which no regular department is carried, such as towing, or livery, or car rentals. All such revenues are entered in this column.

A, B, C, etc., down the sides of Form 1 do not appear on the regular system. They are placed here for reference purposes only.

Having explained these column names or headings the reader is prepared to go on with the entry of business, but first let us explain the column headings on Form 2.

Description of FORM 2

THIS form takes care of the expenses of the business. Its operation will take care of overhead and all other expenses by departments. But let us turn to the column headings.

1—STOCK ACCOUNTS. Every time anything is bought and placed in stock it is entered here, with the name of the stock and what it cost. Every time gasoline, oil, spark plugs, horns, etc., are bought and put into stock they are entered here.

AMOUNT will not be explained. It was explained under Form 1.

NAME will not be explained.

2—EXPENSE ACCOUNTS. These cover the expenses of the business, and the "accounts" are the departments. They are General, Gasoline, Repairs, Storage, Parts and Accessories, Car Sales and All Other Accounts, and are taken up one by one in the following paragraphs. For instance, the salary of a mechanic would be entered under the **REPAIR** expense.

3—GENERAL DEPARTMENT (under Expense Account)—This is the office and management. Sometimes it is called Executive or Administrative. It is the department of the business which does not earn anything and which is an expense pure and simple. That is why it was not on Form 1. Form 1 departments are those which bring in an income, so there was no reason for placing this one there; if it were, its column would always be unfilled. It contains part of manager's salary, clerks, telephone, etc.

4—GAS DEPARTMENT (under Expense Accounts)—This corresponds to the department on Form 1 that was called Gas, Oil, Grease.

5—REPAIR DEPARTMENT (under Expense Accounts)—This is for the expenses of the repairshop, salaries, power, and everything else connected with the repairshop.

6—STORAGE DEPARTMENT (under Expense Accounts)—The expense of storing and caring for cars is entered in this column. The wages of a washer or polisher would be entered here.

7—PARTS AND ACCESSORIES DEPARTMENT (under Expense Accounts)—This is for the expenses of this department, such as salary of salesmen, insurance, etc.

8—CAR SALES. No entries appear in this column on this form. As explained on Form 1, car sales will be treated in a separate chapter, because some men do little besides sell cars and some garages do not sell them at all. But this column is for the expenses of the car selling department when there is one.

9—ALL OTHER ACCOUNTS. This appears twice, once on the Debit side

and once on the Credit side. It means just what it says.

10—ALL CASH PAID. This is very important. It corresponds to ALL CASH RECEIVED on Form 1. Every time cash is paid out it is entered here. Pay \$10 for oil and it is entered here. Remember this.

11—CHECK NUMBER. When the cash is paid by check the number of the check is entered here.

12—TO WHOM PAID. On Form 1 we have a similar entry opposite ALL CASH RECEIVED. The character of the two columns is similar. In this case the man or company to whom any cash is PAID is entered here.

A, B, C, etc., are for the same purpose as on Form 1 and do not appear on the regular system.

READ THIS AGAIN. If you still have trouble on any detail write to Motor World. But the reader should now be fairly well acquainted with these forms, which is the main object of this first instalment. It was deemed best to have the reader become familiar with the looks of the system before making the entries.

Next week we take up Form 1 and after that Form 2. It will be found easy to follow the articles, but while waiting for the next instalment the reader should read this first instalment over several times and become thoroughly familiar with the forms.

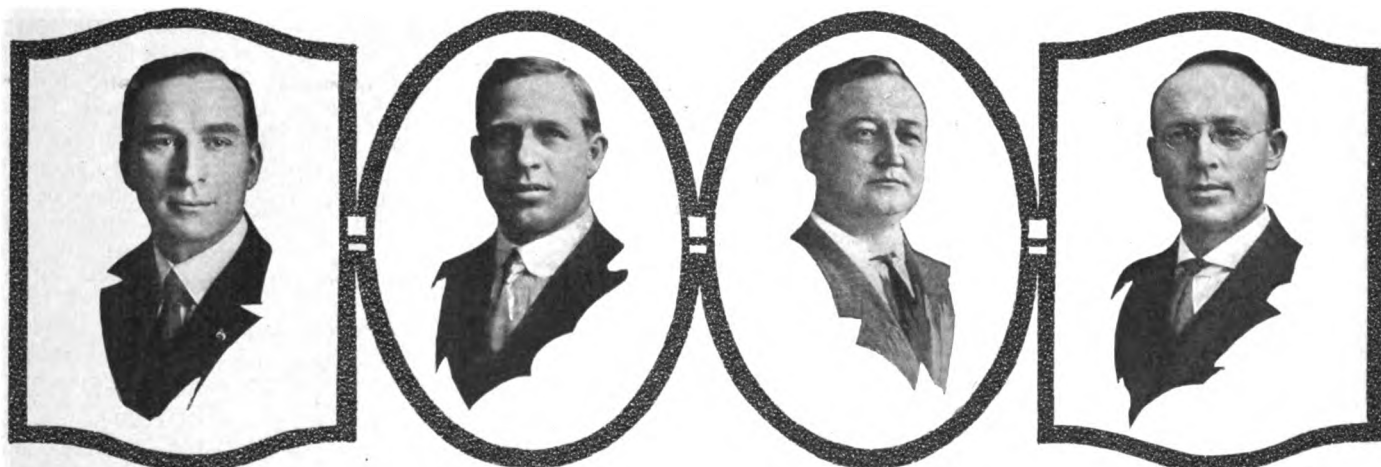
Especially if the reader is unfamiliar with accounting, he will make his way much easier if he becomes as familiar as possible with everything in this instalment.

Address any questions to the System Editor. Advice is free and gladly given. In fact, questions are requested. We want to make sure every reader fully understands every last detail.

AND NOW—

This finishes the explanation of Forms 1 and 2. If you do not understand them,

Four Officers of the Retail Automobile Dealers' Association of Minnesota



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Secretary-treasurer Rud Stensvad, Redwood Falls

Director W. E. Frazee, Frazee Bros. Co., Detroit

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Gearsets Are Simpler, Smaller, Lighter and More Accessible

Coming of Center Control Has Solved Many Problems—Axle Position Giving Way to Unit Power Plant—Roller Bearings Increase

CHANGE in gearset design has been slow and the development by easy stages. There has been only one great change since gearsets first were used, this being the introduction of the direct drive, which came more or less simultaneously with the live axle transmission. From this point onward development has been directed towards simplification of detail, elimination of noise and reduction of size and weight.

Lately the main development has been the great simplification rendered possible by the coming of center control, and changes in the form of bearings most popular with manufacturers can also be observed. Steady abandonment of the rear axle situation for the gearset and the growth in favor of the unit power plant has made noise in the gearing far more difficult to eliminate, or rather, more noise is permissible in the old type than can be allowed for the new.

Of course, in these days of everywhere on high, the noise made by second speed and low gears is of little importance; that which counts is the hum of the constant mesh pinions. It is the opinion of several prominent engineers that the most potent influence in reducing this sound is continuity of engine torque, eights and twelves proving easier to cope with than sixes or fours, but apart

from this the bearings used seem to have the greatest influence. That the quietest gearset is obtained by the use of all plain bearings seems to be agreed by everyone, but the difficulty of satisfactory lubrication is such that ball or roller bearings are used almost always for both portions of the main shaft.

Roller Bearings Increasing

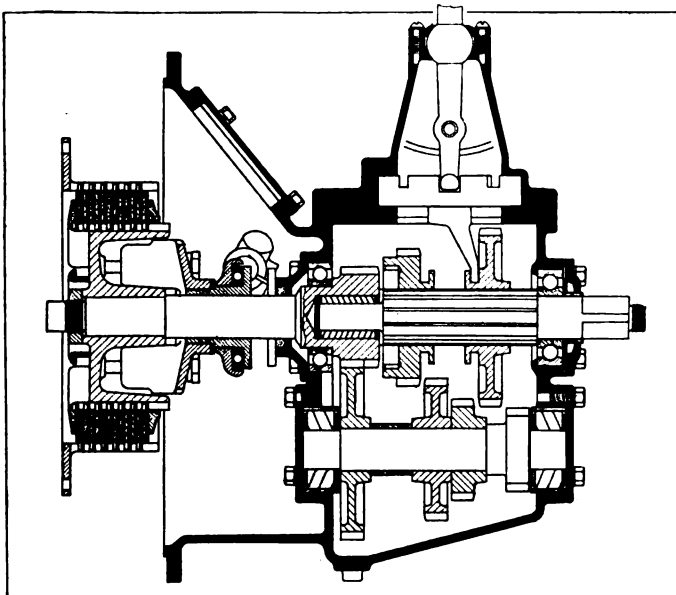
For the countershaft plain bearings are used fairly often, because the latter can be so situated that it is in a permanent bath of oil or grease. Roller bearings, especially certain types, seem to give quietness results nearly as good as plain bushings, so it is not surprising to find that their use is increasing. Of all bearings the most difficult to quiet is the ball bearing, which is regrettable because it is the easiest to apply in limited space and its frictional efficiency is, of course, very high.

The average gearset, judged from the specifications of a large number of standard types, has ball bearings for the main shaft and roller bearings for the countershaft. Open ball bearings are used for only the front end of the main shaft, but in many cases a ball race is used at the tail end because of its ability to resist the occasional end thrust from the drive shaft.

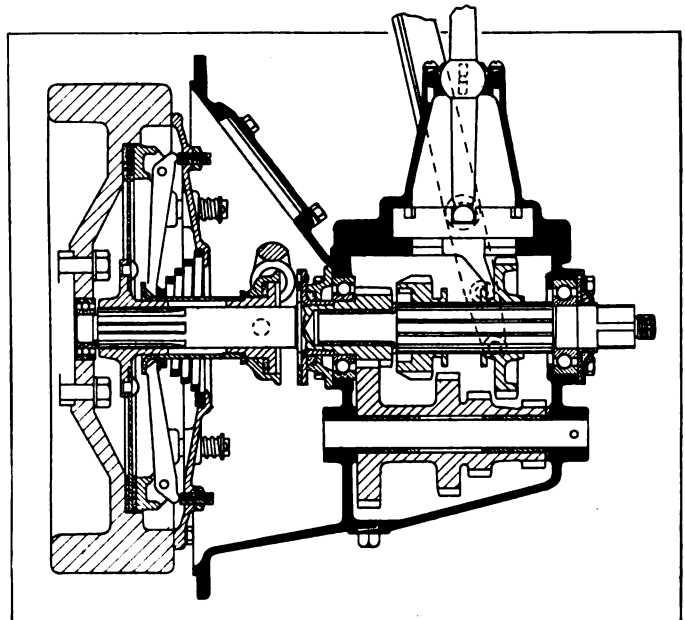
A conspicuous bearing development is the steady increase in the number of gearsets with a ball or roller spigot bearing. This spigot has always been the weakest point in the direct drive type of transmission, because the bushing is so located that its lubrication is a trifle uncertain, and it runs at quite high speed when the low gear is in use. The load on it may also be considerable, and if it wears and so gets slack the shafts are put out of line and noise results immediately. At present the most popular bearing for the spigot is a small, special type of roller, and this has proved wonderfully satisfactory in service. A ball bearing is used in a good many gearsets but is not so easy to accommodate as the roller.

Many experiments with helical gears for the constant mesh pair have not led to the general use of this type of tooth; it seems no easier to ensure quietness with it than with plain spur teeth. If this really is true, then it seems unnecessary to use helical teeth for the timing gears in the motor. The two cases are contradictory and the situation not easy to understand, for cost hardly enters into the matter.

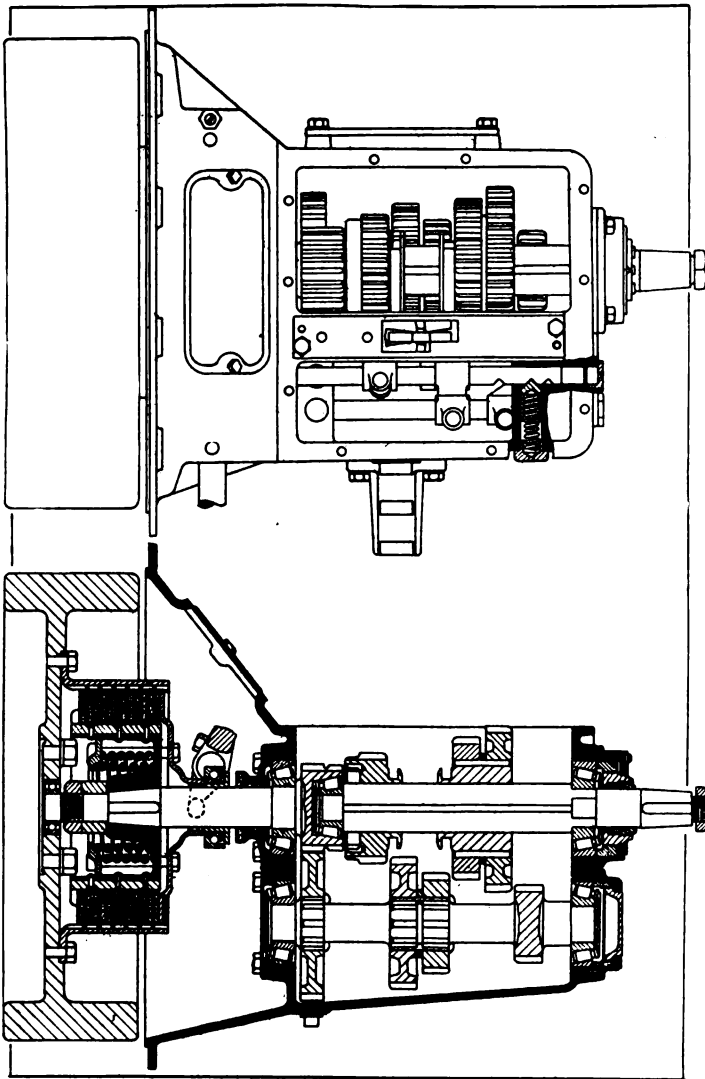
An undoubtedly important factor is the rigidity of the support given to the short, front portion of the main shaft



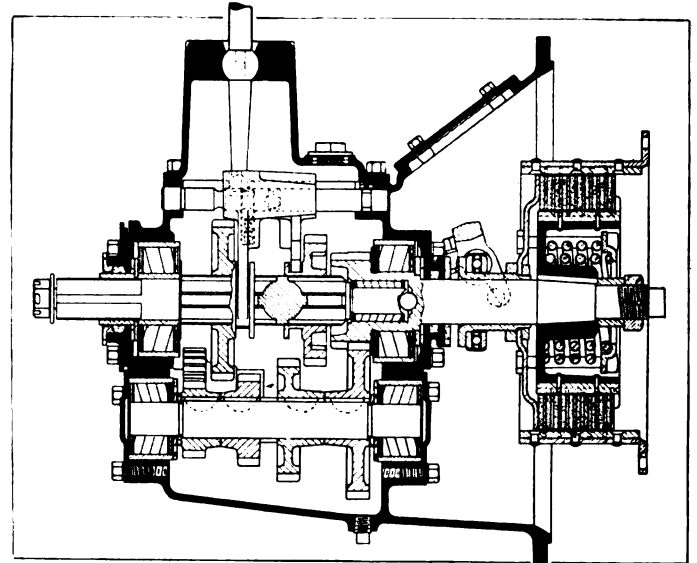
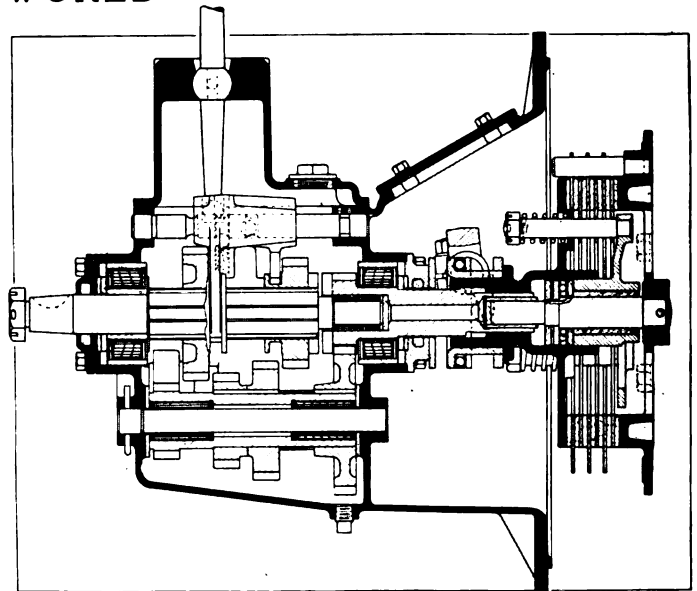
The simple gearset made by the Mechanics Machine Co. Any gear can be replaced individually and the gearset is very easy to take down or assemble. Note the large number of splines and the roller spigot bearing



Another gearset made by the Mechanics Machine Co., this time with a single disk clutch. The countershaft is pinned and held stationary while the gears on it are a single forging. This is one of the simplest and most compact gearsets



One of the few four-speed passenger car sets remaining. This is a Brown-Lipe. The Brown-Lipe Co. is an upholder of the taper roller bearing which it prefers to all other forms. It will be noticed that individual gears can be replaced on the countershaft, their attachment being very simple. To prevent oil leaks there is a substantial gland at the ends of the main shaft



Two types of Covert gearsets. The lighter model has a clutch with readily adjustable individual springs while the heavier has a double clutch spring. In the lighter, the the countershaft is fixed and the gears run on long, small roller bearings; in the heavier gear, the shaft turns and high duty Hyatt bearings are employed. In the heavier gear the gland at the tail of the mainshaft is adjustable, but the smaller set has a non-adjustable type of oil retainer. Both gearsets are conspicuous for the size of the bearings

which, in many unit power plant designs, often becomes almost an integral portion of the crankshaft when the clutch is engaged.

Casing Material Affects Noise

Another factor in noise production is the material of which the case is made. Iron, it is found, makes a quieter casing than aluminum, which at first seems curious, as iron is certainly a far more resonant metal. Probably the explanation is to be found, at least partly, in the greater rigidity of iron. While it is easier to get a quiet transmission with iron enclosure, it is quite possible to get as good results with aluminum by a careful study of the sections, and, perhaps the addition of a web or rib here and there. Just at present the price of aluminum encourages the use of iron, but it is unlikely that this will continue as the price returns to normal.

Most important of all, from the noise

viewpoint, is the original cause of the noise, the gear itself, and it is noteworthy that manufacturers are steadily year by year making better gears and mounting them more accurately. The allowable tolerance on the accuracy of alignment between the shafts has been made smaller, the methods for heat treating and hardening the gears have been improved, the machines for cutting the teeth are doing more accurate work. One of the leading gearset makers actually uses a burnishing process after the gears are otherwise finished so as to remove the least roughness from the tooth faces.

For passenger cars the four-speed gearset has almost ceased to exist, but it is still obtainable from most manufacturers, and it is stated that there appears to be a tendency towards its use

for light trucks. With modern engines and the low rear axle ratios of today there is little need for more than three speeds in the gearset, and to provide four calls for higher cost, greater weight and increased opportunity for noise. It is to be doubted whether the four-speed gear will ever return to favor; more likely is it that some totally new form of transmission will replace the gearset altogether.

Higher Speeds Reduce Weight

Weight has been cut conspicuously for 1916, but this has not been done by alterations in gearset design so much as by the changes in motors. The general decrease in dimensions and increase in crankshaft speed has lowered the tooth pressures very greatly, so a far smaller

gear is amply strong. At 2,000 r. p. m. 40 horsepower can be transmitted by a gear with half the tooth strength needed to transmit 40 horsepower at 1,000 r. p. m.

It is unquestionable that the ease of gear shifting is very much greater on certain cars than on the average, and almost always it is found that the cars with the easy shift have very light clutch parts. There are some clutches which are so light that it is hardly possible to make a sound in shifting gears however ill judged the time for changing may have been; but the majority need some practice before proficiency is obtained.

Center control, and the unit power plant, which two things cut down to

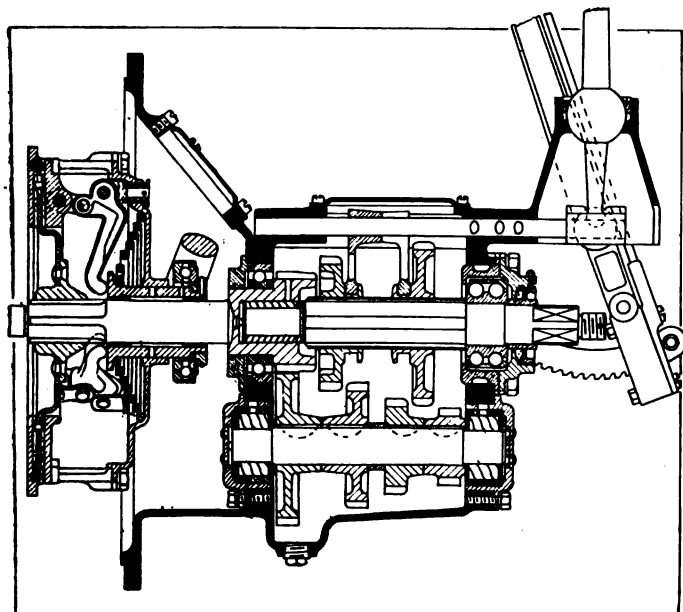
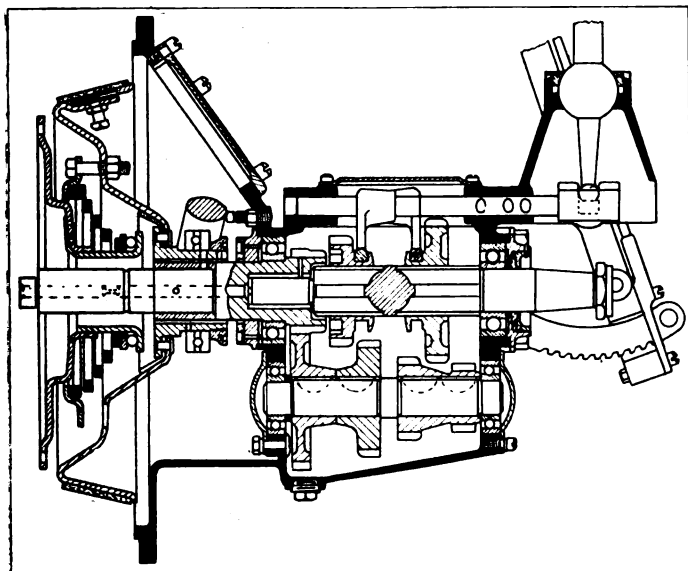
the minimum the number of connections between the shift lever and the gears to be shifted, have made the actual lever movement very light and easy on practically all gearsets, but there is still room for improvement in clutches. Where the increasingly popular dry-disk type is used it is possible to arrange the inner member to be of extremely light weight and gearshifting becomes correspondingly easy. A very light clutch needs no clutch stop or brake and with it changing either up or down is equally easy.

Cone Clutch Requires Brake

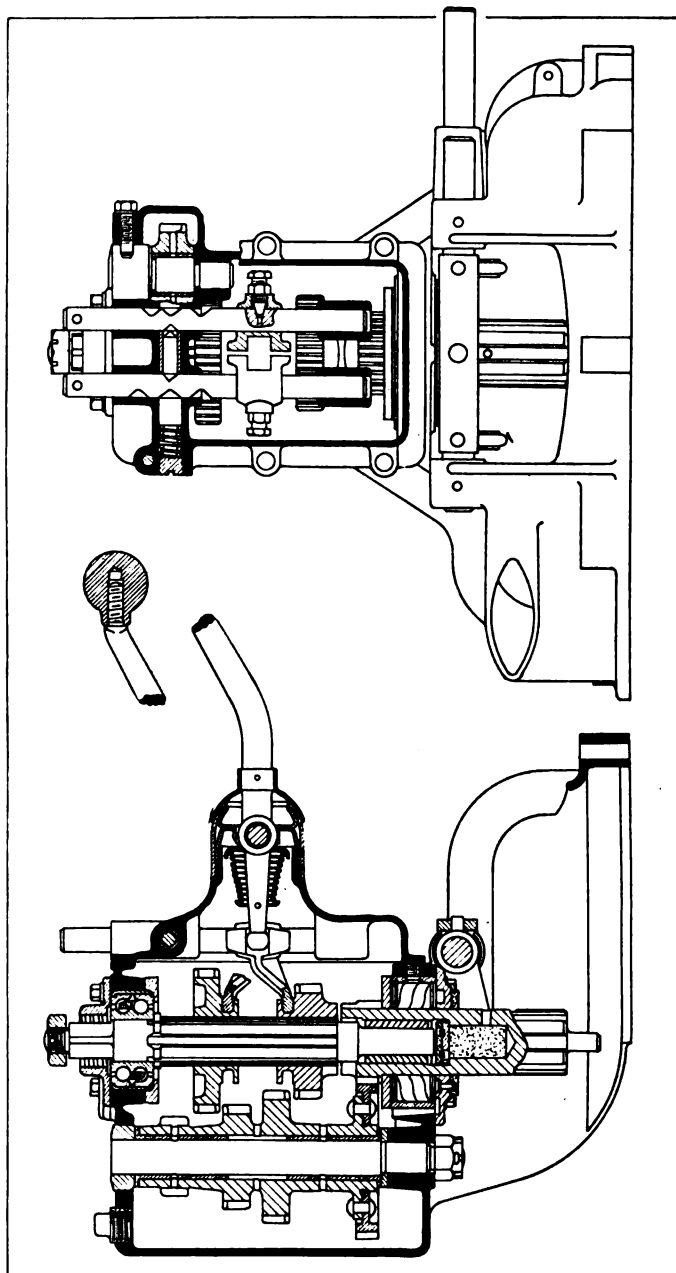
With a cone clutch the same lightness cannot be obtained, but the weight can be fairly low and the provision of a

good brake makes shifting upward as easy as with a lighter clutch. Where the cone clutch fails is in making a quick shift from high to intermediate, for it cannot be speeded up without a double pedal action which very few drivers ever learn to perform. Of course, there are advantages with the cone clutch, notably simplicity, ease of renewing the wearing surface, and facility of spring adjustment.

The best of all clutches when in perfect condition is the multiple disk running in oil, but it is costly to make and difficult to keep in good condition. The nature of the oil is a trouble, cold weather is liable to cause sticking and the average repairman is not very clever



Two examples of Warner workmanship, the one with roller bearings being intended for a moderately heavy passenger car and the other for lighter work. The clutches illustrated are two alternative patterns and are interchangeable for any one size of gearset without any alternation to either gearset or flywheel beyond the need for a cone seat in the wheel for the cone clutch. The method of assembling the countershaft gears on keys as separate pieces, and the use of a main shaft with four splines are two typical Warner features



The Northway gearset, generally found in combination with a Northway motor in unit power plant designs. The double row ball bearing is an unusual feature, especially in conjunction with the roller spigot bearing and plain bearings for the countershaft. A neat point is the use of a spring to maintain the tightness of the inclosing shield at the foot of the shift lever

with the type. Hence its use is confined almost to very high-priced constructions where efficiency is insured by an expensive design.

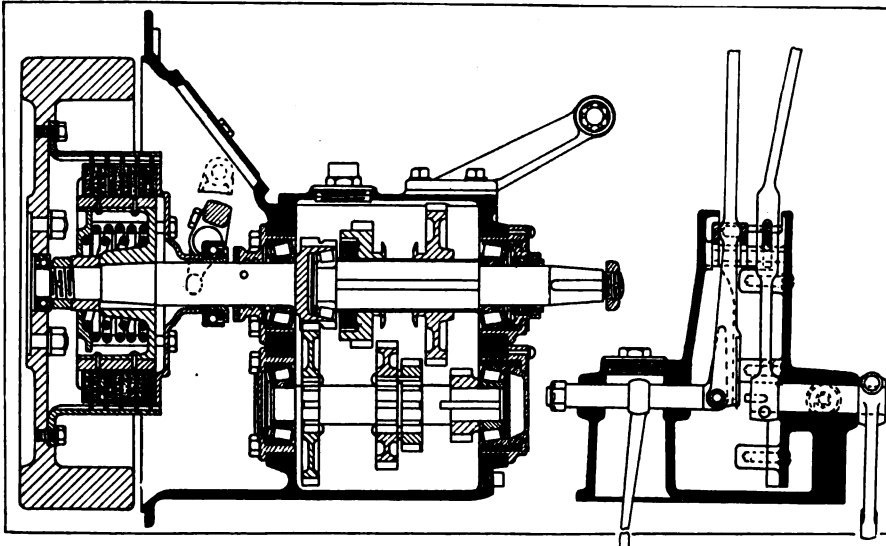
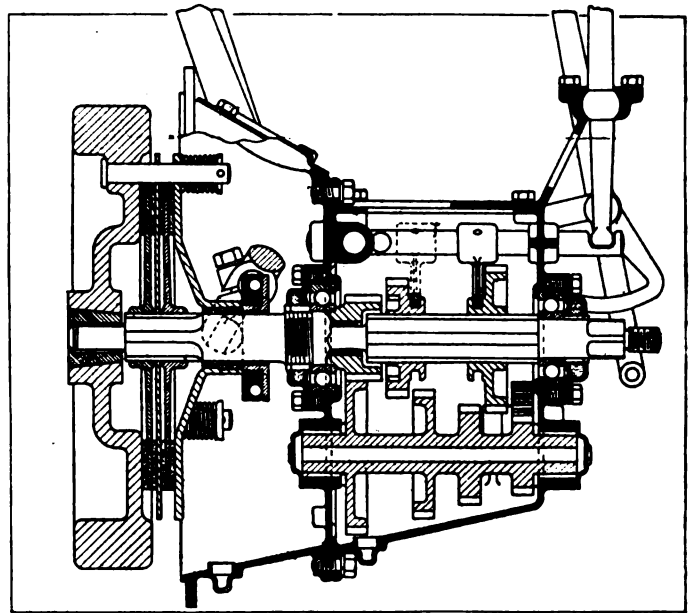
Dry disk and cone still just about hold their relative positions of equality; probably habit largely accounts for the continuance of the cone, and the manufacturer's natural dislike for giving up a thing which has caused him no trouble in the past.

No Gear Ratio Rule

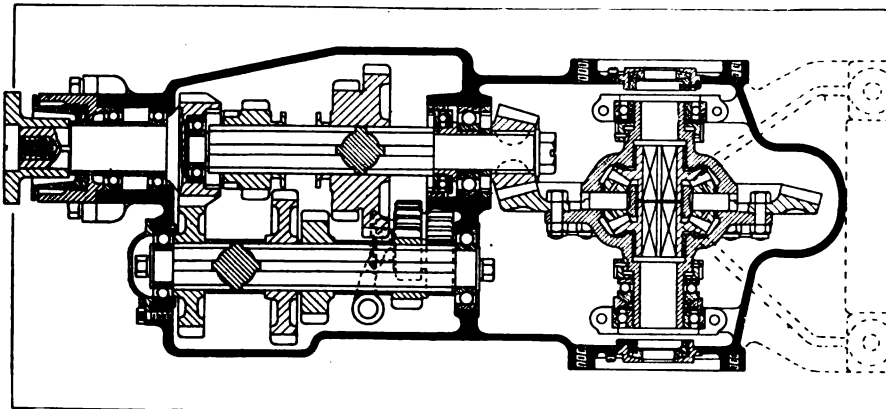
Among the gearset makers there is some difference of opinion as to the proper proportion of second speed to high, and low to second. Some consider that the intermediate ought to be fairly close in ratio to the high, arguing that a car will do nearly everything on these two gears and that the ease of shifting produced by a small drop in ratio encourages the driver to utilize his engine to best advantage. Others take the intermediate as the geometric mean between high and low, yet others leave

the matter to the chassis designer and make ratios to suit their customers' ideas.

A simple design made by the American Die & Tool Co. Features are the two disk clutch with a particularly light revolving inner member. A unique point is the hollow countershaft which has all four gears integral with it



This three-speed Brown-Lipe gearset is a characteristic design for that manufacturer, having taper roller bearings and a square section slide shaft. Adjustment for the bearings and the tail end grease gland is provided, as shown in the cut



A Warner gearset for three-ton trucks with chain drive. The main feature is the use of very high grade steels so as to enable the weight and size to be kept down. The adjustment for setting the mesh of the bevel gears is on the differential housing, to set the meshing the adjustment just back of each ball bearing and either side of the differential is used, but merely to adjust the ball thrust race only the adjustment on that side should be touched

There is no rule or formula considering the power and weight of the car which is used generally in determination of gearset ratios, a rather remarkable state of affairs which suggests a useful subject for some investigator to tackle as subject for an S. A. E. discussion. Theoretical ideas seem to be applied in very few cases and the discovery of some good empirical rules ought to be useful.

Koehler 1-Ton Truck at \$895

NEWARK, N. J., Nov. 15—Specializing in one type of chassis for a four-cylinder, shaft-driven 1-ton truck, the H. J. Koehler S. G. Co. plans a minimum output of 2,000 machines for the 1916 season. This concern's product, known as the model K, sells for \$895, has a wheelbase of 129 in., is equipped with a flareboard body.

The power plant is of the unit type. Three-point suspension is used. The four-cylinder motor has a $3\frac{1}{2}$ -in. bore and a 5-in. stroke, is of the valve-in-the-head type and develops 30 horsepower. Cylinders are block-cast, the upper part of the crankcase being cast integral. A jacketed cylinder head contains the entire valve arrangement for the four-cylinders and is easily removed. An important feature of the motor is that the exhaust gases have a quick outlet to the manifold, separate from the cylinder head.

A cone type clutch is housed with the flywheel and the 3-speed gearset. A special radiator is used which employs separate top and bottom tanks with side members bolted together around a vertical tube core, or cooling section. A high-tension magneto is used.

The internal gear drive type of rear axle is employed, all working parts of which are mounted on heavy-duty roller bearings. Both front and rear wheels are 34 in. in diameter.

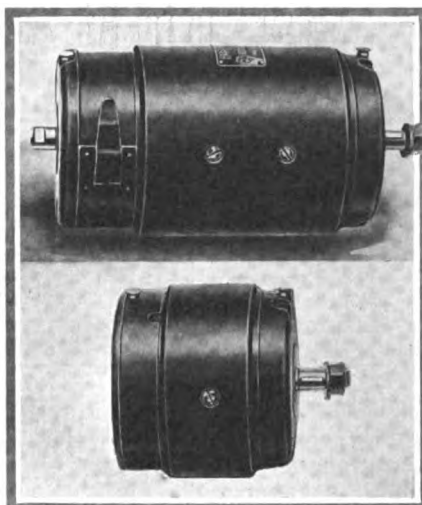
Bosch Develops Standard Lighting System

Two Dynamos and Equipment Which May Be Bought Separately

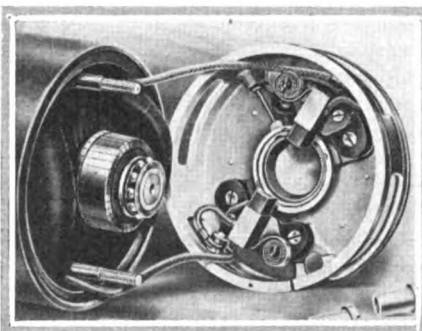
The Bosch Magneto Co., New York, has just brought out a new lighting system which is styled the Bosch Standard Lighting System and which is intended primarily for manufacturers, who do not necessarily desire to change equipment but who desire to use a Bosch generator, and for the use of garagemen and others in making installations. The former Bosch De Luxe system was sold only in complete form with the necessary wiring, lamps, switches, etc., of Bosch make.

The two dynamo models of the new type will be known as DSR3 and DSR103, the first being rated at 100 watts and the second at 80 watts. Each equipment consists of dynamo, control box and switch, making three units, and a battery, making the fourth, is necessary to control the voltage of the dynamo.

For regulating the output of the generator the field magnets carry an additional winding which opposes the main winding, the amount of current flowing in these opposition coils being regulated by a resistance coil. If the speed of the dynamo increases and the current output rises, this affects the controlling resistance in such a way as to send current through the opposing winding on the magnets. This in turn cuts down the strength of the field, and so the current.



Upper, the new 100-watt generator. Lower, the 80-watt instrument which is designed particularly for installation by the garageman



End cover of generator removed, showing accessibility of brushes

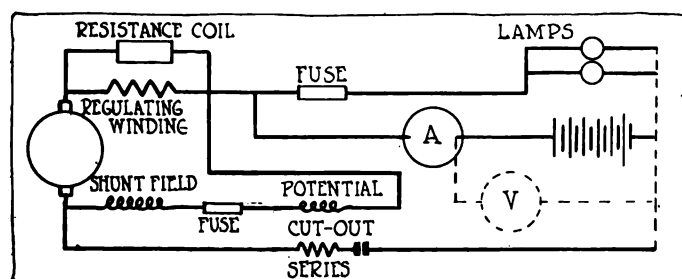
The voltage is therefore determined by the battery, for as soon as the potential difference between the poles of the generator rises above the voltage of the battery when fully charged, the resistance comes into play and sends a restraining current through the field coils in opposition to the main shunt windings. Bosch Standard generators are designed to operate in conjunction with a 12-volt storage battery. It is claimed that the current capacity of the generator is sufficient to care for the full lamp load on an ordinary car, and the battery is needed only for starting or for lights when the engine is not running.

The generator is mechanically of extremely neat exterior, being sheathed in seamless steel tubing to which a pair of end caps are bolted after assembling.

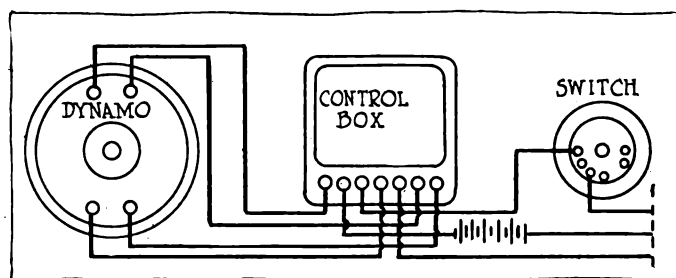
The armature is laminated and is almost entirely encircled by the windings on the two field poles, a feature of design that tends to reduce commutator sparking by damping out armature reactions. There are two pig-tailed brushes, mounted in strong spring holders within the commutator end cap, where they are well protected, and yet readily accessible for inspection, as there is an opening of good size that may be uncovered by moving a strap which is held over the orifice by a special catch.

There are four external terminals, placed in the shaft end cap of the generator, and these are clearly numbered, magneto fashion, so that there can be no mistake in making connections.

The controlling resistance coil and the automatic cut-out are assembled in a separate box together with the main fuse and a field fuse, which latter prevents



Complete wiring diagram of the Bosch Standard lighting system



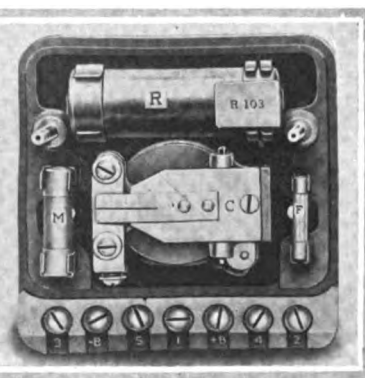
Wiring between the three units, switch, control box and dynamo



Bosch lighting switch without meter



The switch as mounted together with an ammeter



Control box enclosing main and field fuses, resistance and cut-out

damage to the field coils should the battery become disconnected and voltage regulation consequently cease. These parts are accessible by removing the metal cover of the box, which can be accomplished by unscrewing two cap nuts.

A feature of the system is that it can be used either grounded, for a single wire layout, or with a double wiring system. The switch which makes the third unit, combines an ammeter and ignition control for the magneto and has four positions; the first is "off" with both ignition and generator out; the second turns on both circuits; the third cuts in the tail and side lamps, and the last adds the head lamps instead of the side lamps.

Heinze Electric System Includes Three Functions

**Lighting, Starting and Ignition in Single-
and Two-unit Form Brought Out—
Compactness a Feature**

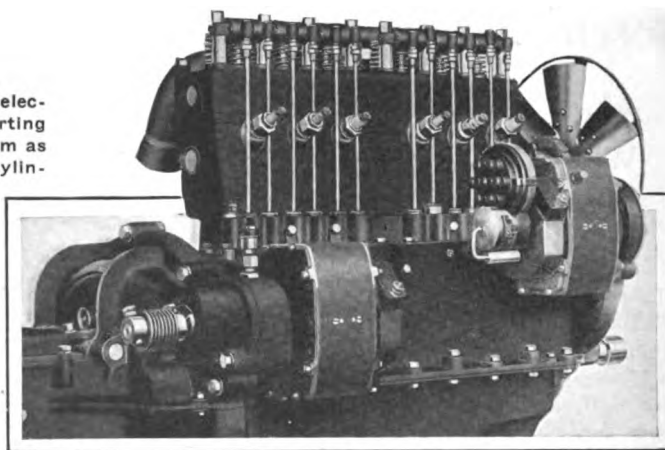
A new electrical equipment announced by the J. O. Heinze Co., Springfield, O., is to be made in either single- or two-unit form, and has for its principal feature the combination of an ignition unit with the generator. The end of the generator is made up with a magneto type of distributor and the breaker cam mounted upon the armature shaft. All this ignition portion is removable and can be cleaned or adjusted with great facility in consequence.

For regulation of the generator output a vibrating reed is employed, this system permitting a tapered charge to be given the battery, a very large current if the battery is low, and a small supply when the battery is fully charged. The machines operate at 6 volts.

For the starting motor a Bendix pinion is supplied for flywheel engagement, and it is stated that the electrical design of the motor is such that it produces a large torque with less current than usual.

Special pains have been taken with the design of the switch unit, one lever con-

The new Heinze electric lighting, starting and ignition system as applied on a six-cylinder motor. Compactness and simplicity are noteworthy features of the installation. The starting motor drives through a Bendix gear



trolling all circuits and giving various lighting combinations while the starting control consists of a button set in the center of the switch. A lock is provided whereby the switch can be secured in the "off" position.

Stress is laid upon the quality of materials employed, it being the maker's claim that by designing and selecting iron with the greatest care they have been able to produce a machine of high efficiency and low weight. Also the construction has been simplified so as to make possible rapid and inexpensive production without losing any of the high quality desired.

The machines have a neat exterior with the square section customary on four pole types.

The factory has been prepared for the production of the new models with accuracy of workmanship as the goal, and it is stated that the inspection, both of details and of the complete machines, is exceptionally careful. Each equipment is to be given a running test under conditions approximating those in automobile service.

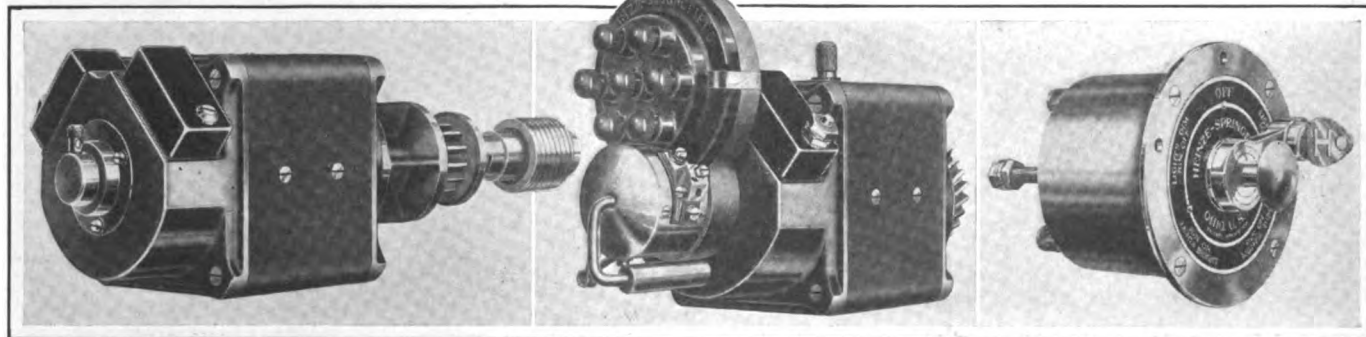
Puritan Salesmen "Globe-Trotting"

DETROIT, Nov. 22—Salesmen of the Puritan Machine Co. are engaged in what the company terms a "globe-trotting" contest. All the salesmen start from Detroit and receive points according to the volume of business done in dollars. These points are made to represent miles

on a map and a tack representing each salesman is moved each week according to the number of miles he is credited with. The salesman securing the largest volume of business in any one month is awarded a first cash prize and there are similar cash prizes for second and third. At the termination of the contest, Dec. 31, grand cash prizes will be distributed to those who are first, second and third in the volume of sales for the entire period. At present the location of the salesmen in their imaginary tour follows: In New Zealand—Hoffman (Wellington), Albright (Auckland), Guenther (North Caps). In Australia—Reynolds (Sydney), Post (Brisbane), Bault (Interior Bush Country).

Three Gas Raises in 8 Days

ST. LOUIS, Nov. 23—Three 1-cent raises in the retail price of gasoline within 8 days constitutes a new record here. On Nov. 15, Standard raised the price of Red Crown from \$.119 to \$.129, and the next day the independents boosted No. 3 gasoline to \$.129 on the tank wagon basis and \$.13 to \$.14 at filling stations. Yesterday Standard raised the price to \$.139 and today the independents made a further increase to \$.15 at the filling stations with a corresponding increase in better grades, No. 2 going to \$.159 and No. 1 to \$.174, all prices in 10-gal. lots. Four months ago gasoline sold for \$.089. The Federal investigation is in progress.



The starting motor, showing compact design and the Bendix gear drive

The combined lighting and ignition unit which is much the same shape as the motor

The lock switch which controls ignition and a number of various lighting combinations

Too Many Tire Sizes and Types Hinders Progress That Might Be Made by Closer Concentration

More Than 70 Different Types Now Necessary, Not Including Cord Models—Straight-side Gains Over Others

THE curse of the tire business has been too many tire sizes, or too many models, as is said in the car business. The Society of Automobile Engineers has been working in hand with the tire manufacturers for several years to reduce the number of tire sizes, and last January recommended the nine sizes with nine corresponding over sizes given in the table herewith.

Unfortunately this does not mean that the tire maker has only to produce 18 different tire sizes. He must make these in straight-side, quick-detachable, clincher, and some of the smaller sizes in the soft-bead clincher type for cars that use the clincher rim instead of the quick-detachable rim. He must also produce these in plain treads and in non-skid treads, so that if these nine sizes were produced in all of these different lines the tire maker would have over 70 different tire models. Add to this the cord tires that are being produced by some companies. If the entire field produced the cord models there would be close to 150 different models of tires. What a list to carry in stock or to get supplies for.

Type Question Important

In the tire world the question of straight-side, quick-detachable, clincher and regular or soft-bead clincher tires is one of more or less concern. The straight-side tire is the one without the clincher beads to hold it in the rim. It uses a different style of rim. The quick-detachable clincher is one used on quick-detachable rims which have a removable ring at one side. These tires have the non-extensible bead, that is, the bead that cannot be stretched. Lastly there is the soft-bead clincher such as used on cheap models in which the bead can be stretched so that the tire is applied over the regular clincher rim.

At present, the straight-side tire is making strong gains over the two clincher types except in the very low-priced field. Ford at present has over 1,000,000 cars—not quite one-half of the total number registered—so that naturally the soft-bead clincher is made in great quantities; but when the Ford output is eliminated and the tires for larger cars considered the straight-side design is in the majority. One of the largest makers is producing eight times as many straight-side tires as Q-D. clinchers, and with

many other companies the increase in the use of straight-side types has been very rapid during the last few years.

There are the usual arguments as to the relative merits of the straight-side

S. A. E. STANDARD SIZES OF
PNEUMATIC TIRES FOR
PLEASURE CARS

Rim Size	Even Tire Size	Odd or Oversize	Tire Seat Diameter Inches
30x3	30x3	31x3½	24
30x3½	30x3½	31x4	23
32x3½	32x3½	33x4	25
32x4	32x4	33x4½	24
34x4	34x4	35x4½	26
34x4½	34x4½	35x5	25
36x4½	36x4½	37x5	27
36x5	36x5	37x5½	26
38x5½	38x5½	39x6	27

and clincher types of tires, but these arguments are not so intense as they were a few years ago, a condition largely due to the gains in the straight-side designs and the fact that practically all manufacturers are building both types according to the respective demands. So far as price is concerned there is not any difference between one and the other, and when the question of manufacture is considered there is little difference, as the added cost of manufacture in one as compared with the other would be a matter of only a few cents at the most.

Merits of the Straight-side

With the car user the straight-side type is attractive, as it is generally conceded to be easier to get on and off the rim. In a canvass of over twenty different tire makers on the relative merits of the straight-side and the clincher types it was generally conceded that there is a somewhat greater air volume in the straight-side type, this increased volume ranging from 5 to 12 per cent, or perhaps 15 per cent, depending on the design of casing.

Some makers of clincher tires deny that the straight-side type has greater air volume because of the design of their clincher type.

Some of the largest tire manufacturers are honestly frank when they say they manufacture both kinds to the demand and that they would gladly welcome the time when either straight-side or clincher types would be standardized so that it

would be necessary to carry only one type in stock. Many tire makers are quite settled in their own minds that the straight-side will be the eventual one and even see the time when the manufacture of the clincher type will be discontinued.

One of the pronounced tire trends of the past year has been the greater volume of cord tires used, cord typifying a form of construction different from the fabric tire. Goodrich and Goodyear are the great exponents of cord construction, these being the only factories that have been marketing the cord product, although there are other concerns that are experimenting with a view to developing the cord design in one form or another.

Goodrich has been manufacturing the Silvertown cord in quantities, having installed banks of machines by which the tire carcass is built up of two layers of cords laid side by side as closely as thread on a spool, though the arrangement is quite different.

Cord Constructions Differ

Goodyear has a quite different form of cord tire, in which the cords lie parallel and are so held by fine cross strands nearly ½ in. apart. These strands permit the cords being handled the same as a piece of cloth, which enables the company to manufacture its tire practically the same as a fabric tire, whereas the Silvertown cord tire is made by winding a single cord from side to side until two complete layers which form the tire carcass have been built up.

The great advantages advanced for cord tire constructions are reduction of vibration, improved coasting qualities, increased car speed and reduced gasoline consumption. The theory in explanation is that the cord tire casing is easier to bend or dent when passing over a small obstacle than the fabric tire, due to the fabric tire being made up of strands lying at right angles to each other the same as in any woven texture. It requires more pressure to dent such a fabric and consequently more power is required to drive a car over such an obstacle. Conversely when the question of coasting is considered, the car is supposed to coast further because its coasting is less retarded by passing over such obstacles.

There are objections, of course, to the use of different forms of cord tires, the objections depending on the form of construction. With some forms of cord tires it is harder to make a repair than with fabric, it being understood that a bad cut is a factory repair job, whereas a similar cut in a fabric tire could be as well repaired in a factory repair depot as at the tire factory. These cords are generally larger than very heavy wrapping cord and the breaking or cutting of several may be more serious than

rupturing a strand in a woven fabric type.

Cord tires are considerably higher in price than fabric tires, the increase being as high as 40 per cent this depending more or less on the tire size. Tire prices on a fabric type range from 14 to 20 per cent lower than a year ago. There was a general reduction in February, but there has not been any since. Compared with four years ago, prices for pneumatics are 40 per cent lower now.

The manufacture of metal rims for pneumatic tires has practically been regulated by the Clincher Automobile Tire Manufacturers Association, Cleveland. This association numbers in its membership 19 of the largest tire makers, 14 concerns manufacturing rims, demountable wheels, etc., some of the latter having associate membership only. This association has practically standardized all types of rims such as straight-side, Q-D clincher and regular clincher. There is one set of standards for Q-D clinchers and two distinct standards for straight-side rims, one known as the narrow standard and the other the wide standard.

The Clincher Automobile Tire Manufacturers Association has its inspectors at all factories manufacturing any of these types of rims, whose duties consist of inspecting all rims to see that they are accurately made and also to stamp them with the association's stamp

showing that they have been inspected and measure up to the requirements of the association. These stamps are a guarantee to the dealer that the rim is of standard accuracy.

The manufacturers in turn have set about to manufacture tires to meet the dimensions of these rims so that one make of tire of a given dimension is interchangeable with any other make; in other words, if the tires are carefully made, one make should fit as well on a standard rim as another make. As the rims used on wire wheels are inspected by the rim association they offer no obstructions to the use of any tire.

Stop a New "Scheme"

EAST ST. LOUIS, ILL., Nov. 22—The very latest thing in "Using the mails in a scheme to defraud" has been disclosed here by five Federal indictments which accused as many men—prominent in their communities—of ordering automobile accessories in Cleveland and Indianapolis, Ind., and then breaking into local railroad depots to steal the accessories addressed to themselves.

This practice, it was learned today, had been going on successfully for some time before either the postal authorities or the victimized accessory houses even suspected that the men who ordered the supplies and those who stole them were identical.

The arrest of the quintet created con-

siderable excitement, both because of the uniqueness of the scheme and because of their standing.

White Withdraws from Shows

CLEVELAND, O., Nov. 23—The White Co. has decided not to exhibit at either the New York or Chicago shows. It is understood that one cause was that at the recent drawing for space a new rule was put into force by which the order of drawing was in proportion to the amount of passenger car business done during the previous year, whereas formerly the order of going was determined by the total volume of business of passenger cars and trucks. White is one of the largest producers of trucks and voting this part of their business out of the reckoning naturally placed them further back in the list of drawing.

Stewart-Warner Dealers Convene

CHICAGO, Nov. 22—The sales force of the Stewart Warner Speedometer Corp. concluded a 5-day meeting yesterday in which three days were given to factory inspection and two days to a convention at the Hotel Sherman. Thirty-eight representatives from all parts of the country attended and were given practical demonstrations of mechanical features of the company's product, and at the 2-day convention what they had seen demonstrated was further explained by charts and diagrams.



Dodging Responsibility Is Dodging Progress

Carrying Only Half the Burden Is Not a 100% Performance—Reilly's Revelation Surprises a Young Friend

By Ray W. Sherman

THE autumn sunshine was casting a radiance of unusual cheerfulness over Linden avenue and the floor of Reilly's salesroom, and the face of the dealer was as bright as the ould sod whence came his ancestors. His handshake was hearty and his farewell was warm as he shut the door behind Lemoure Fairfield, he of the clean white spats, scarab scarf pin and glisteny silk top-piece.



"—you didn't seem to be able to carry the responsibility that attaches to the job"

For he, be it known, had just ordered a Sennett. He had paid down a good big deposit and had ordered all sorts of extras. He wanted no detachable top of plebian characteristics; he wanted two regular bodies, one for winter and one for summer. And he wanted a special color and a monogram and a whole lot of rinky-dinks that cost him money. But he should worry about money. Hadn't his father made enough for several generations and left "Lemy" the job of walking delegate for Callawassa's aristocracy?

Shadow Chases Sunshine

Reilly was still beaming inwardly—if that can be done—and was telling himself what a fine ad it was going to be for the Sennett, when the door again opened and the biggest bunch of human sorrow and shadow that Reilly had ever seen darkened the floor. It was little

Johnny Moss and he sure did look blue. Ultramarine better describes it.

"Why all the sad face, Johnny? Why all this morguey look?" Reilly tried to spread his good cheer, but it spread like some lubricating oils in January—in Chicago.

"Things aren't breaking very well," mournfully explained the delegation of sorrow as he preempted a vacant chair and invited sympathy.

"Nothing—Except Fired"

"Well, well! What's happened?"

"Nothing much—except that I got canned off the job," was Johnny's dolorous reply.

"Is that all?" laughed Reilly.

"Joke, isn't it?"

"Who said it was a joke? Because it's sad is no reason I can't laugh at it, is it?" retorted the dealer. Sympathy served only to make Johnny sadder, and Reilly knew it. "But tell us about it. What happened?"

"Well," began Johnny. "You know that job you and Jerry Sullivan got me with the Everwear Tire people in the downtown branch?"

"Yes."

"Well, I've lost it."

"So you told me before."

"I know I told you before, but I feel pretty bad about it, Reilly. I don't know why I lost it. They just told me I was canned, and told me to beat it."

"What do you want me to do? Get you another job?"

"Do you suppose you could?" There was a grasping-at-a-straw note in Johnny's voice.

The Reason Why

"Maybe I could. I'll try—always glad to try, Johnny."

"Gee! If you only could!"

"But didn't they tell you why they let you go?"

"No, I don't know any more about it than you do," asserted the young man. "I thought I was getting along nicely there; I started in as a clerk at the counter and then I thought they were going to make me manager of the sundries department, but the next thing I knew I was canned. And I don't know any more about it than you do."

"Maybe not as much," smiled Reilly.

Johnny started. "Not as much!" He grasped the arms of the chair and leaned

forward. "Do you mean to say you know?"

"I think so," was the car dealer's cool reply.

"What then? Why? Why did they do it?"

"You were slated for the management of the sundries department, Johnny, but you didn't measure up to the job. You went along swimmingly for a certain distance, and then you began to slack up. You were faithful enough and worked hard, but you didn't seem to be able to carry the responsibility that attaches to the job."



"Finally you trotted upstairs and interrupted the boss in the midst of some important business"

"I didn't!"

"No," deliberately answered Reilly. "That is the principal reason you failed to get that department managership. The reason they let you go was that they need a manager for that department and, having taken you on for that purpose and you having failed, they want to make room for another candidate."

"Gee!" lamented Johnny. "I wish I'd known that before. I might have made good."

Started Well But Failed

"You might—but you didn't. I am told that as a salesman in that department you made good. You soon became one of the good salesmen. You demonstrated your ability at the start of your upward progress, and you were thought to be the man they wanted when they began to work you into the management. But after a while you failed."

Dealer Help Work of a Kind That Helps the Dealer



Road salesmen of the Splitdorf Electrical Co., Newark, N. J., are urging dealers to use window displays. E. H. Mendel, who travels out of Newark for this company, goes a step further in the work. He sets up windows himself for the dealers.

The window at the right is that of the Albany Hardware & Iron Co., Albany, N. Y. The other is that of the Olmsted Co., Syracuse, N. Y. The feature in each window is, of course, the Splitdorf product. Both were set up by Mendel.

There is a wide field for educational work of this kind by salesmen or jobbers and manufacturers; the latter are in an excellent position to "know how" and the salesmen are in an excellent position to spread this knowledge.



"It is not a question of your ability, Johnny. They have no fault to find with that. Neither is it due to lack of judgment in your position as an executive; you were good on that score. The point is that you failed to use that judgment. You seemed to lack confidence in your own ability to do and decide. But why you did it is not important to the Everwear people. The important point with them is that you did not shoulder the responsibility."

"What didn't I do?" pleaded Johnny in an effort to have some light thrown on his own shortcomings.

"Well—" Reilly hesitated and thought. "Here's one thing. One day while you were supposed to be in charge of the department a man came in and said that the dealer from whom he bought the car, and who lives out in Midtown, had told him to come in, get some blow-out patches and have them charged to the dealer at dealers' discount."

Knew What Was Right

"The clerk went to you, as manager of the department, and asked you what should be done. You knew that the Everwear people have a rule that goods shall not be charged to dealers in that way unless the dealer gives a definite order of some kind. This protects both the dealer and the Everwear people. You should have told the man right off the bat that you couldn't do it."

"But what did you do? The man insisted it would be all right, and buffaloed you and you finally trotted upstairs, interrupted the boss in the midst of some important business and asked him what to do. And he told you to do what you already knew you should do. You should have played manager instead of messenger boy. Do you remember that?"

"Y-e-s, I do remember that instance, now that you speak of it," was the young man's faltering reply.

"And do you remember the day that you trotted up to the boss to find out about what to do with Percy Hammond's case?"

"Yes."

"There were a long list of things like that which caused your downfall. They tried to make a manager of you and you wouldn't manage. Every job they have requires a certain amount of initiative, self-confidence and executive ability, and when it came to putting yourself on the proper level in this respect you slipped. They have other men in that same class but they need a manager. They can't promote one of the men they have, so they're hunting for an outsider. That's why you got your chance. The reason you failed is you."

Johnny was thoughtful.

"Tommy Trumbull, Charley McGrain and even Nellie can and will run my business when I'm away. It's something important indeed that they won't take care of. Even Tommy handles trades without ever asking me about it. He knows what's what and does it without any fuss."

"Maybe I'll get another chance some day," hopefully interrupted the youth.

"I hope so," said Reilly.

"And if I do," added Johnny, "just watch me!"

Willard Installs Country-wide Battery Service

To promote the greatest satisfaction and make sure those who use Willard batteries will enjoy their use, the Willard Storage Battery Co., Cleveland, has instituted an inspection service. This brings the battery often under the eye of the Willard expert and avoids any possibility of dissatisfaction through neglect or improper care.

The important part of the service is an inspection card. Each user of a Willard battery is entitled to one. When he calls at a service station the battery is inspected upon presentation of the card and distilled water is added, if needed. The hydrometer test is regarded as worth a trip to a service station for that purpose alone.

The company is having the cards issued through its 500 service stations and is receiving the cooperation of car manufacturers.

SUGGEST GOODS TO CUSTOMERS

Show your clerks the value of suggesting goods to customers. When they learn to show customers the goods you handle, you will have no difficulty in moving stock.

Repairing and Adjusting

Charging Ford Magnets Without Removal

It is possible to recharge a Model T Ford magneto without taking the motor down. It is necessary to have five or six 6-volt 50-ampere storage batteries connected up as shown. If direct current is used enough resistance must be connected to reduce the current at the magneto to 30 volts 30 amperes.

The first step is to get the magneto in the proper position to receive the current. Hold a compass over the transmission cover as shown in Fig. 1 and turn the motor over slowly until the hand of the compass, which normally points north, will point to a spot about $\frac{1}{4}$ inch from the side of the fiber at the bottom of the contact assembly on the transmission cover. Then disconnect the wire leading to the dash coil from the contact assembly and attach instead the wire leading from the positive pole of the battery. It is now possible to use the current. To do this make and break the circuit by striking the wire leading from the negative pole of the battery against some part of the motor. About 20 contacts of six seconds' duration should be sufficient to recharge the magnets fully.

"It has been our experience that owners or garagemen do not accomplish good results in attempting to do this work and we accordingly cannot recommend it as we believe better final results follow the replacement of the magnets with new parts which can be obtained from the Ford branches," says the Ford Motor Co. in a letter to Motor World.

BEVEL TEETH BREAKING

Champhering the corners on the teeth of the ring gear, Fig. 2, will prevent the teeth chipping off without materially weakening the gear. The champhering is quickly done on an emery wheel.—H. C. Sayer, G. O. Reynold's garage, New Rochelle, N. Y.

HEAT EXPANDS WORN PISTONS

In some repairshops instead of refitting new pistons the old ones are swelled or expanded by heating and allowing them to cool slowly in a bed of charcoal. The expanding process consists in placing one piston at a time into a bed of charcoal so that the latter completely covers the piston. The charcoal is fired and after the piston has become red-hot the fire is allowed to go out slowly, thus cooling the piston in a bed of charcoal. When the piston is removed it is sometimes as much as .004 inch larger in

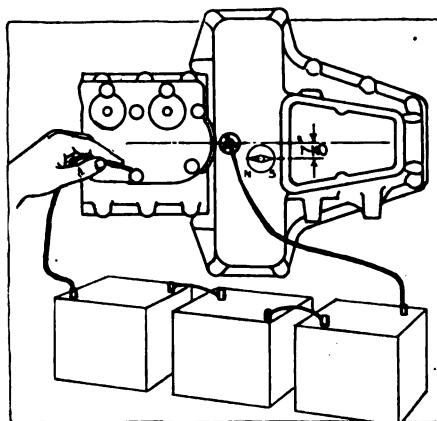


Fig. 1—Diagram showing how Ford magnets may be recharged without removal

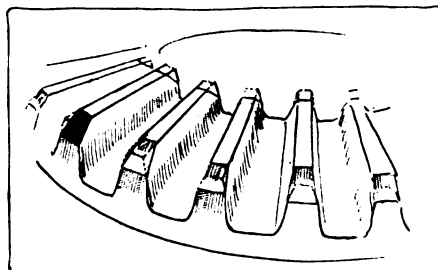


Fig. 2—Champhering bevel gear teeth to prevent breakage

diameter. When replaced into its cylinder the excessive clearance formerly evident is taken up and the motor will run more smoothly. Although this practice is in use, it is by no means as good and effective as getting new pistons, but the swelled pistons give good service and the work is easily done and at small cost.

POROUS JACKETS CAUSE MISSING

Missing at low speeds and overheating may be the result of water leaking from the jackets into the cylinders due to porous cylinder walls. Sometimes the leak is so small that it is difficult to detect. The overheating is explained by the fact that when idle the motor must run at considerably higher than normal speed and that this often causes the water to boil—hence the loss of water in the system is blamed entirely on the overheating and the leakage into the cylinders passes unnoticed.—John Hawkins, Hawkins' Garage, Trenton, N. J.

SPARK PLUG CAUSES KNOCKS

A car had a slight knock in it, and investigation proved that the trouble was due to a loose camshaft gear. Repairs were made and the owner paid a bill of about \$10. Two or three days later the knock reappeared, and the owner took

his car to a different repairman, for he felt that careless work had been done by the first man. When the motor was taken apart the same trouble was found, but as this repairman was more alert he determined to locate the cause. The immediate cause seemed to be a slightly bent camshaft, and on looking further he discovered that the seat of the difficulty was a spark plug with too long a shell, which prevented the valve from rising quite to its full height.

ALERTNESS IN REPAIR WORK

A new car was brought back by the owner the day after delivery with the complaint that the clutch slipped. The clutch was examined, but as nothing seemed to be wrong it was decided to dismount the clutch in order to run down the difficulty. When the cone spider was removed it was found to be in perfect condition, as also was the clutch spring. Just to be on the safe side, however, a new clutch spider was put in. When everything was ready the car was tested and still the clutch slipped. Finally, to prove whether the clutch was slipping or whether the trouble was somewhere else, the actuating linkage was disconnected right at the clutch, and it was found that the clutch held perfectly. Examination of the linkage revealed the fact that the bushing that carried the clutch pedal was such a tight fit that the pedal could not release fully. A new bushing remedied the trouble.

OIL-TIGHT VALVE GUIDES

Leakage of oil through the valve guides, Fig. 3, can be prevented by cutting a conical groove in the top of each guide and then cutting a slot with a hack saw blade about $\frac{1}{16}$ in. deep to allow the oil that is caught in the groove to run back to the motor. The slot should be cut on the side of the guide that has least wear.—R. Vogel, N. Rochelle, N. Y.

It is advisable to put in a new pinion gear every time a new ring gear is installed; otherwise there is danger of the new ring gear being broken.—J. C. Hartley, C. P. Weeden M. Co., Trenton, N. J.

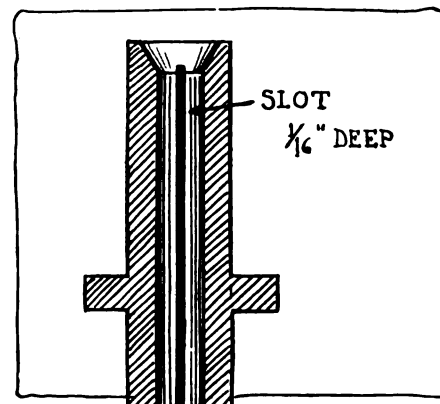


Fig. 3—Leakage of oil from push rods prevented by slot

Dealer's Legal Status

Only Six States Have Laws Specifically Providing for Garagemen's and Repairmen's Liens—Common Law Obtains in Other States—The Need for Legislation

By George F. Kaiser

ONLY the states of New York, Massachusetts, Michigan, Indiana, New Jersey and Wisconsin have enacted statutes to date specifically providing for garagemen's and repairmen's liens on motor cars for repairs, storage, etc. A large number of the states of this country, however, have artisans' lien laws which have been enacted by the various legislatures from time to time, and which provide that mechanics, artisans or other persons who add to the value of personal property by their labor or by furnishing materials at the request of the owner or other legal possessor of the property have liens upon such property for the amount of their charges.

Enactments of this kind are really only declarative of the old common law which has come down to us from the time the states were merely colonies. In those states where there have been no enactments at all, as regards the right of a garageman, repairman, mechanic or artisan to a lien for improving personal property (and there are a number of states which have no such enactments), the old rules of the common law with regard to these liens are still in force.

Except in those states which have specific lien laws, the right of a mechanic

to a lien depends upon whether or not the property is kept in his possession until the debt is paid. It has been held in various courts in the different states that garagemen cannot avail themselves of the common law rights to a lien when a car is kept on live storage at a garage and the owner has the right to take it out whenever he so desires. Claims for storage for dead storage, however, might be recovered under this head, providing always that the owner is not allowed to take the property away.

The garageman's right to a lien is the same as that of a livery stable keeper. A livery stable keeper has no lien in the absence of statute where his customer boards his horse and uses it at will. Because of this fact, almost all states have enacted special livery stable keepers' lien laws which give to them specific liens, even though the horse owner has access to the horse at his pleasure. There is just as great a need for similar legislation in the various states in favor of those persons who are adding to the value of motor cars by repairing, storing and furnishing supplies and accessories.

The lien laws in the various states at the present time are substantially as follows:

ALABAMA

Mechanics who contribute labor and materials toward the repair and improvement of vehicles have liens for their charges, which liens must be enforced by attachment within 6 months after the last item of material is furnished or the last item of labor is performed. Section 4785 Code of Alabama, 1907.

ALASKA

Persons who bestow labor on an article of personal property at the request of the owner have a lien upon the property on which the labor was bestowed and may retain possession of such property until their charges are paid and sell it at public auction if their charges are not paid within 30 days, provided, however, that 30 days' notice is given before the sale. The claim must be filed within 60 days after the completion of the work. Laws 1915, Chapter 5.

ARIZONA

Mechanics and artisans have liens for the amount of their charges for work done on personal property, but this lien expires in 6 months, unless suit is instituted. Section 3673, Chapter 5, Revised Statutes.

ARKANSAS

This state has no specific garageman's lien law, but has a provision that mechanics, blacksmiths, wheelrights and material men have liens for labor and materials furnished in repairing vehicles. The supreme court held, in the case of *Sheldon vs. Little Rock Auto Co.*, 146 S. W., page 129, March 25, 1912, that a garageman is a wheelright under this provision of law and has a lien for labor performed by him and materials furnished in repairing a motor car. He must file an itemized statement of his account with the Justice of the Township where the

debtor resides or where the property on which the lien is claimed is located, which description must be verified by affidavit. Kirby's Digest, Sections 5013, 5016.

CALIFORNIA

Every person who, while lawfully in possession of an article of personal property, renders any service to the owner thereof by labor or skill employed for the protection, improvement and safe-keeping or carriage thereof, has a special lien thereon, dependent on possession for the compensation, if any, which is due to him from the owner for such services; the person who makes, alters or repairs any article of personal property at the request of the owner or legal possessor of the property has a lien on it for his reasonable charges for the balance due for such work done and materials furnished and may retain possession of the property until the charges are paid. . . . and garagemen shall have a lien, dependent on possession, for their compensation in caring for and safe-keeping motor cars. Section 3051, page 1010, Supplement to Notes and General Laws of California, entitled "Liens on Personal Property for Services Thereon."

COLORADO

Mechanics have liens upon articles of personal property when these are made, altered or repaired at the request of the owner.

CONNECTICUT

Garagemen and repairmen seem to have no liens in this state for storage or repairs, etc.

DISTRICT OF COLUMBIA

Any mechanic or artisan who makes, alters or repairs any article of personal property has a lien thereon for work done or materials furnished and may retain such article until

his charges are paid. If they are not paid within 6 months, he may sell such property at public auction.

FLORIDA

Any person has a lien on personal property when he performs any labor upon or with any engine, machine, apparatus, fixture or implement, or upon such engine, machine, apparatus, fixture or implement, and for manufacturing, repairing and altering articles or things of value. Suit must be brought on claims of this kind within 12 months from completion of the work or the furnishing of the last item of material.

GEORGIA

This state has no specific statutory garageman's lien law, but mechanics have liens on personal property upon which they have worked. In the case of *Boughman Automobile Co. vs. Emanuel*, 73 S. E. 511, January 10, 1912, a garageman's right to a "mechanic's lien" for labor performed and materials furnished in repairing a motor car was recognized.

IDAHO

Persons making, altering or repairing an article of personal property at the request of the owner have a lien for reasonable charges and may retain possession of the property. If the charges are not paid within 2 months, the garageman may sell the property at public auction on 10 days' notice after advertising in a newspaper in the county where the work was done or posting a notice in three of the most public places, if no newspaper is published there.

ILLINOIS

Illinois has no garageman's and repairman's lien law. It was decided in the case of *Rehm vs. Vail*, 185 Illinois Appeals, 425, that a dealer has no lien on motor cars for storage or supplies like gasoline and accessories. A lien law was introduced at the last session of the legislature but failed of passage. There is a general lien law in this state, giving mechanics, etc., a lien for improvements on personal property, but this law only applies where they have possession of the property.

INDIANA

Every person, firm or corporation, or others engaged in storing or furnishing supplies for or repairing motor cars or trucks or motorcycles, or every person, firm or corporation, or others maintaining garages shall have a lien on such motor car, motor truck or motorcycle for storage charges or charges for keeping any such vehicle or for furnishing supplies for repairs.

The dealer must file his lien in the office of the Recorder of the county where the work was done within 60 days after the last item of work is done or the last item of material is furnished. The notice must show the amount claimed by the dealer and must also describe the vehicle. The lien must be foreclosed within one year by filing a complaint in the circuit court of the county where the vehicle is located. Chapter 156 Laws of 1915 Indiana.

IOWA

Persons having personal property in their possession to which they have imparted additional value by their labor have a lien for their charges thereon where there is no special contract for such lien.

KANSAS

Blacksmiths, horseshoers, wagon makers, etc., are entitled to liens for improvements on vehicles and other chattels upon which they have performed work or furnished materials. Chapter 28 Laws of 1913. In the case of *Olsen vs. Orr*, decided in the supreme court, this lien law was held to be applicable to cases where work is done on motor vehicles, but that the lien is lost when possession is given up, unless a statement is filed with the Register of Deeds of the county within 3 days after the work is done.

KENTUCKY

There seems to be only a common law lien in this state.

LOUISIANA

Mechanics and artisans have a lien on movable personal property which is still in their possession for labor extended in the improvement of such property.

MAINE

Persons have a lien for labor expended in the improvement of personal property. At a recent session of the legislature an act was passed which provided that whoever puts a motor car in a public garage, or other place where cars are stored for hire, and without having an express agreement for storage, procures accessories or accommodation for himself or said car, and with intent to defraud the owner or keeper of said garage removes or causes to be removed any such car from such garage without paying the reasonable charges due for

repairs, supplies, accessories or accommodation furnished thereon, shall be punishable by imprisonment not exceeding 3 months or by a fine not exceeding \$100. In order for the owner or keeper of such a garage to obtain the benefits of this act, a printed copy must be posted up in some conspicuous place in the garage. Chapter 214, Laws of 1913 Maine.

MARYLAND

Persons altering or repairing personal property at the request of the owner are entitled to a lien on such personal property when it is kept in their possession.

MASSACHUSETTS

Persons maintaining public garages for the storage and care of motor cars and other motor vehicles which are brought to their premises or placed in their care by or with the consent of the owners thereof, shall have a lien upon such motor cars for proper charges due them for storage and care. Chapter 300 Acts of 1913 of Massachusetts being entitled "An Act Relative to Liens by Persons Maintaining Public Garages."

MICHIGAN

All garagemen who furnish labor, gasoline or supplies by express or implied contract have a lien on all motor cars, etc., stored, maintained and supplied or repaired or furnished with gasoline, electric current and accessories when these things have been furnished at the request or with the consent of the owner. The vehicle may be detained at any time within 90 days after the last item of work was done or the last item of material was furnished. Dealers may advertise if they are not paid within 90 days after serving a claim of a lien and an itemized statement of the account and can then sell the property like at a chattel mortgage sale. Dealers must comply with all the laws of state, cities, towns, etc., to avail themselves of this lien law. Michigan 1915 Law.

MINNESOTA

Persons altering, repairing or bestowing labor on any article of personal property at the request of the owner or legal possessor have a lien for their just and reasonable charges. If they are not paid within 90 days, they may sell the property at auction on giving notice. They also have a lien for storage.

MISSISSIPPI

Garagemen have a lien for labor performed and materials furnished in repairing motor cars under Code of 1906, Section 3075, and may retain the property in their possession and sell it. This right is superior to that of a person who sells a car on a conditional bill of sale and retains the title. Decided in *J. A. Broom & Sons vs. S. S. Dale & Sons*, 67 Southern 659, March 15, 1915.

MISSOURI

There is a common law lien on chattels which have been improved by the labor of a mechanic if they are retained in his possession.

NEBRASKA

Any person who makes, alters or repairs, or in any way enhances the value of any vehicle . . . at the request of or with the consent of the owner, shall have a lien on such vehicle . . . while in his possession for a reasonable or agreed charge for the work done or materials furnished; and shall have the right to retain said property until said charges are paid. If possession of the property is parted with, the lien may be retained if a certificate is filed in the office of the clerk of the county where the work was done or the material was furnished, or the property was kept, together with a verified statement of the items of work, etc., and a description of the article repaired . . . within 60 days after the last item was performed. Chapter 39 Revised Statutes of Nebraska 1913, paragraphs 38-41, Section 19, entitled "Artisans' Liens."

NEW HAMPSHIRE

There is a common law lien when a person has lawful possession of personal property for any expenditure made by him or labor performed at the request of the owner.

NEW JERSEY

Garagemen, repairmen, etc., may detain vehicles in their possession against which they have charges for storage, repairs, gasoline, accessories, etc., until they are paid. The lien is not lost if motor cars are removed from their possession, and they may be seized wherever they may be found in any part of New Jersey.

Detained cars may be sold at public auction after 30 days if the sale is first advertised in a paper in the city or town where the garage or repairshop is located, and 5 days' notice is set up in five of the most public places. Chapter 312 Laws of 1915, New Jersey, entitled "An Act for the Better Protection of Garage Keepers and Automobile Repairmen."

NEW MEXICO

Mechanics, artisans, etc., have liens on articles of personal property made or repaired by them for the amount due.

NEW YORK

Garage keepers have a lien on motor cars for storage, repairs, gasoline and other supplies furnished with the consent of the owner whether a conditional vendee or a mortgagor in possession, and may detain the property if in their possession until their charges are paid. Section 184 Lien Law, Consolidated Laws of New York.

NORTH CAROLINA

Mechanics, etc., have a lien on articles of personal property which they repair or alter. This lien must be filed within 12 months after the completion of the work. Six months additional are allowed to institute an action to enforce the lien.

NORTH DAKOTA

Mechanics have liens for the amount of their charges for labor performed upon articles of personal property.

OKLAHOMA

Blacksmiths, wheelrights, horseshoers, etc., have liens for work done or articles repaired.

OREGON

Repairmen, machinists, mechanics, etc., who have extended labor or furnished materials have a lien for the amount of their charges.

PENNSYLVANIA

Mechanics have a common law right to a lien for labor performed by them. There is an act in this state entitled "For the Protection of Keepers of Garages or Automobile Shops" providing that every person who shall place in any garage or repairshop any automobile for storage, repairing or garage service, and shall surreptitiously remove the automobile or cause it to be removed by any false pretense or device with intent to defraud, shall be adjudged guilty of a misdemeanor and, upon conviction, shall be sentenced to a fine of not more than \$100 or imprisonment in the county jail for a term not exceeding 3 months, either or both, at the discretion of the court.

PORTO RICO

No mechanics' lien law or lien for those furnishing labor or materials exists in Porto Rico.

RHODE ISLAND

Mechanics are entitled to liens upon articles for labor performed and expenses bestowed at the request of another.

SOUTH CAROLINA

Mechanics have liens upon articles of personal property when they have bestowed labor upon the same.

SOUTH DAKOTA

Mechanics have liens upon articles of personal property for labor performed on the same.

TENNESSEE

Garagemen, etc., have a common law lien on property repaired by them if they retain possession of it. Under Acts of 1909, Chapter 150, providing that there shall be a lien upon any vehicle . . . for any repairs or improvements made or fixtures or machinery furnished at the request of the owner or his agent, in favor of a mechanic, contractor, founder or machinist who undertakes the work. A mechanic has a lien for repairs for labor performed and materials furnished

in repairing an automobile. *Shaw vs. Webb*, 174 S. W. 273, Supreme Court of Tennessee, March 6, 1915.

TEXAS

Although there is no special provision for a garageman's lien in this state, mechanics, artisans, etc., have a lien for any articles created in whole or in part by their services and for labor performed upon the same. Under Article 5665 R. S., 1911, there is a special provision for liens for work on vehicles. It has been held that though a garageman may avail himself of the lien given under these statutes, he loses the lien by giving up possession of the property. *Malcom vs. Simms*, 164 S. W. 924; *Caldwell vs. Supply Company*, 158 S. W. 1031; *Ford vs. Freeman*, 168 S. W. 80.

UTAH

Any person bestowing labor on personal property at the request of the owner has a lien for his labor and for materials furnished in connection therewith. In the case of *Westminster vs. McCurtain*, 118 R. C. 564, September 27, 1911, it was held that a garageman was included and had a lien for his services in repairing an automobile.

WASHINGTON

Persons extending labor, skill or materials on articles of personal property at the request of the owner have a lien upon such chattels for the contract price of their labor and materials or for the reasonable price of their services for a period of one year, providing that they file notice of their claim within 90 days from the date of delivering up the chattel and institute an action to foreclose their liens within 90 days after filing notice of lien. 1 R. & B. C., Sections 1154, 1157.

VERMONT

Every person who makes, alters or repairs an article of personal property at the request of the owner has a lien thereon for his reasonable charges and may retain possession of the same until such charges are paid, and further may, if such charges remain unpaid for 3 months, and the value of the property does not exceed \$100, sell the same at public auction by posting notice in two or more places in the town of his residence for 10 days.

WISCONSIN

Every garageman . . . and every person keeping any . . . automobiles . . . shall have a lien upon and may retain possession of any such . . . automobiles . . . for the amount which may be due for the keeping . . . and care thereof until such amount is paid, provided, however, that no keeper of any garage . . . shall exercise the aforesaid lien upon any automobile unless there shall be posted in some conspicuous place a card stating the charges for storing the aforesaid automobile, the same to be easily read at a distance of 15 ft. by any person entering the aforesaid garage by entrances. Violation of the above is a misdemeanor, punishable by a fine or not less than \$5 nor more than \$25. Laws of 1915 Wisconsin.

VIRGINIA

Mechanics have a lien for labor bestowed in improving personal property.

WEST VIRGINIA

Mechanics and artisans have liens for repairing personal property.

WYOMING

Mechanics have liens upon articles which they have improved by their labor.

STATES HAVING LAWS GIVING GARAGEMAN A LIEN

Depend on Possession?	STATE	What does lien cover?	Depend on Possession?	STATE	What does lien cover?
Yes	Alabama	Labor, materials.	Yes	Missouri	Labor, materials.
Yes	Alaska	Labor.	No	Nebraska	Labor, materials.
Yes	Arizona	Labor, materials.	Yes	New Hampshire	Labor, materials.
Yes	Arkansas	Labor, materials.	No	New Jersey	Storage, repairs, gas, supplies.
Yes	California	Labor, storage, materials.	Yes	New Mexico	Labor, materials.
Yes	Colorado	Labor, materials.	No	New York	Storage, repairs, gas, supplies.
Yes	Dist. of Columbia	Labor, materials.	No	North Carolina	Labor, materials.
Yes	Florida	Labor, materials.	Yes	North Dakota	Labor, materials.
Yes	Georgia	Labor, materials.	Yes	Oklahoma	Labor, materials.
Yes	Idaho	Labor, materials.	Yes	Oregon	Labor, materials.
Yes	Illinois	Labor, materials.	Yes	Pennsylvania	Labor, materials.
No	Indiana	Storage, repairs, gas, oil, supplies.	Yes	Rhode Island	Labor, materials.
Yes	Iowa	Labor, materials.	Yes	South Carolina	Labor.
Yes	Kansas	Labor, materials.	Yes	South Dakota	Labor.
Yes	Kentucky	Labor, materials.	Yes	Tennessee	Labor, materials.
Yes	Louisiana	Labor, materials.	Yes	Texas	Labor, materials.
Yes	Maine	Labor, materials.	Yes	Utah	Labor, materials.
Yes	Maryland	Labor, materials.	No	Washington	Labor, materials.
No	Massachusetts	Storage, care	Yes	Vermont	Labor, materials.
Yes	Michigan	Labor, gas, supplies, electricity.	Yes	Wisconsin	Labor, materials.
Yes	Minnesota	Labor, materials.	Yes	Virginia	Labor.
Yes	Mississippi	Labor, materials.	Yes	West Virginia	Labor.
			Yes	Wyoming	Labor.

WIDE-AWAKE MERCHANDISING

EXPERT WASHING CREATES TRADE

Tacoma Firm Specializes on This Work—It Pays

The Standard Motor Car Co., Tacoma, is an expert in the washing and polishing of cars, and recently has issued a number of cards covering this service. For washing and polishing Ford cars the rate is \$1, for other makes of light cars, \$1.25, and for five- and seven-passenger cars, \$1.50. The cards issued read:

This card is good for \$1.50					
Expert Auto Washing and Polishing					
STANDARD MOTOR CAR CO.					
744 Commerce St.			Main 4527		
• High Grade Auto Trucks and Pleasure Cars					
1	2	3	4	5	6
Storage			Repairing		

The card is O. K'd by the manager and the car is run on the wash rack and after the operation the number 1 is punched out and the price written in. After the number 6 is punched out the card is then good for one free wash and polish. This additional service is bringing the Standard company many new customers, several of whom have become interested in Vim trucks, which this company distributes. Shoemake & Kirby, the proprietors, are well pleased with the results obtained with their washing and polishing card.

STICK TO YOUR SUBJECT

If you advertise bargains, emphasize price. If you advertise regular goods at regular prices, talk quality.

Always emphasize service, mentioning careful attention customers get from your employees, prompt delivery of goods purchased, freedom from mistakes, etc.

Be specific. Tell why your goods are good. Truth and simplicity will attract people quicker than so-called originality.

The best advertising is "mouth to mouth." Treat your customers so that

Barnett Continually Lets Customers Know His Interest

THANKSGIVING DAY



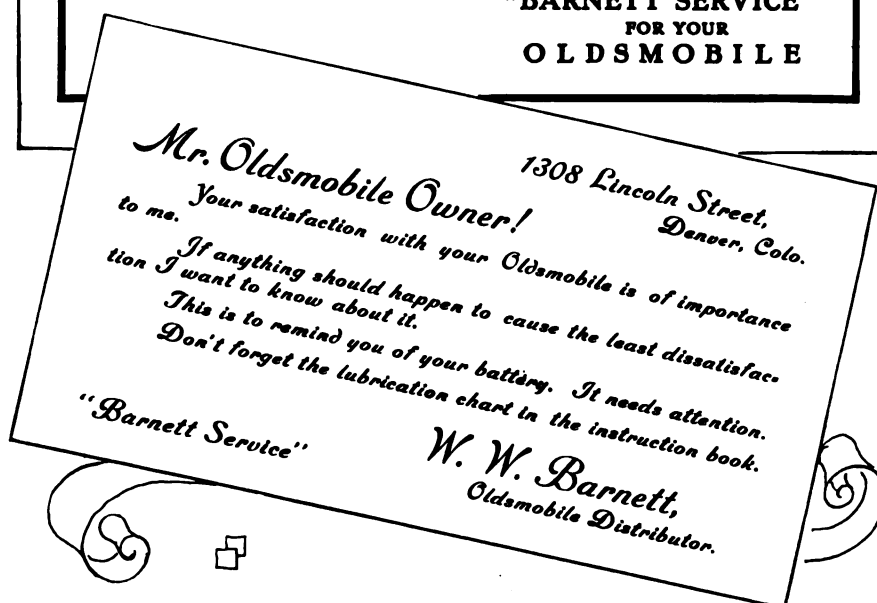
LET us give thanks that the home address of the Dove of Peace is U. S. A.

Let us give thanks for every little blessing. And if the Feast de Turkey is followed by a run in our Oldsmobile let us first scrutinize the motor with a fault-finding eye. *Faults follow forgetfulness!*

So let us not forget to see that the battery is covered with distilled water—and the car lubricated according to the lubricating chart—two important things mentioned in the instruction book.

Remember—

"BARNETT SERVICE"
FOR YOUR
OLDSMOBILE



The upper card is one of a series printed in two colors that are sent out two each month to Oldsmobile owners by W. W. Barnett, Denver Oldsmobile distributor. The lower is a plain printed postcard that goes out the first of each month. "You would be surprised at the appreciation expressed by many of the recipients of these cards at this attention shown them," says Barnett.

they will tell their friends about you and advise them to deal with you.

If your business is so situated or so large that you do newspaper, billboard, street car, or window advertising, you will find that neat, clean-looking printed matter is the best investment.

LIGHT UP!

Keep your store well lighted. A well-lighted store is always attractive, and goods can be displayed to better advantage.

Remember that unusual things advertise your business. You can do unusual things without doing ridiculous things.

WHEN FRANKNESS PAYS

"How much will you allow me on my old car?"

"Not a dollar more than we have to."

This frank statement generally wins the customer, for it shows him plainly that the dealer is under the necessity of obtaining the old car at a reasonable figure if he is to break even on the deal.

WHEN MRS. SMITH ENTERS THE STORE

What Then? Do Clerks Treat Her Properly, or Not?

When Mrs. Smith enters your store, ordinary Mrs. Smith, we mean—the woman who wears neither silks nor satins, nor Mother Hubbard, nor shawl—but who is one of the great middle class that lives well, pays bills promptly and is an all around desirable customer—

Do your salespeople go right on with their across-the-counter conversation?

Do they take their time about going forward to wait on her?

Do they stand with a bored expression while she fingers merchandise?

Do they hand out what she wants, and stop there?

Do they answer questions with a dreamy air or snap out replies like a shrew?

OR

—do they step forward smiling and with alert air, giving a "Good Morning" as if it were meant from the heart, and asking to be of service?

Do they handle the merchandise in a way that enhances its value, subtly suggesting more or better goods.

Do they use judgment in closing, so as to save time and very often the sale?

Do they try to influence purchasing in other departments?

Do they put the sincerity into the "Thank You" and "Good Bye" that sends the customer away happy and brings her back to your store again?

The answer depends on whether your staff is trained or untrained.

Nobody means to be inattentive, discourteous, lax or lazy, but lots of annoying mannerisms creep in unnoticed, and it takes training to eradicate them.

Are you teaching your employees?

Training of the store staff in the fundamentals of service and salesmanship is proving its worth in the largest and best merchandising organizations in America—it will prove its worth in your store.—
Dry Goods Economist.

OLD TIRES IN TRADE

"One dollar an inch for old tires in exchange," is the business motto with which the Imperial Garage & Motor Co. has drawn customers to its place of business at 27-33 Paradise Row, St. John, N. B. The company pays \$1 an inch of cross section, and gets list for all new tires. The \$1-an-inch is recovered mostly by the scrap rubber route. June 14, when the business was new, this letter was sent out:

"We have a proposition that should interest you. The fact that we are a new

Garage in Saint John, our earnest desire is to become acquainted with all automobile owners.

"We are buying all old tires at One Dollar per inch (cross-section) in any condition, in exchange for new. For instance, for a 30 x 3½-in tire we pay \$3, for a 4-in. tire, \$4, etc.

"The tires that we have to sell are not seconds, shop worn or last year's stock, but of the best makes and FIRST QUALITY ONLY.

"We trust that you will take advantage of this offer at once."

Why Not Draw Trade With a Letter

Here's One That Will Stimulate Interest In Your Stock

This is the time of the year when people begin to prepare themselves and their cars for the coming of really cold weather. Some cars will be laid up, and these will have storage batteries which must be attended to; those that remain in service will require anti-freezing solutions, lighter grease and oil, and their owners may require new wraps and robes, foot warmers, mixture heaters and primers.

The wide-awake dealer can cash in on this business by writing a letter to each one of the motorists in his town, calling attention to the cold weather necessities which he has to sell. Such a letter might be worded about as follows:

Dear Sir:

If you are planning to put your car up for the winter we would suggest that you leave your battery with us to be periodically charged and kept filled with water so that when spring comes it will be ready to give perfect service. Neglect to charge the battery even when idle will result in its quick deterioration. The charge for this service is 50 cents a month.

On the other hand, if you intend to run your car throughout the winter, you will require an anti-freezing mixture. We have a compound which we guarantee to give satisfaction in every way. Its freezing point is 10 degrees below zero and its costs 50 cents per gal. and about 5 gals. are required for the average car. With the addition of a small amount of alcohol from time to time to replace evaporation this will last all winter.

We have a full stock of winter necessities, as we call them: warm gauntlets, sweaters, coats, shoes, etc., foot warmers which keep the car and occupants warm from the exhaust heat of the motor; mixture heaters to warm the gasoline and give ready starting; primers for injecting gasoline into the manifold, and a host of other things that motorists need.

Please examine our winter necessities window display next time you go by.

Yours respectfully,

Your 1915 Profits

Page 5

YOUR CHANCE IS SAME AS BROWN'S

Others Succeed, Why Not You? —You Need System

Other storekeepers are getting rich with no better opportunities than you.

Look into your way of doing things. See how the most successful merchants do business. Adopt the system that has increased profits for merchants.

Have a system in buying, a system in selling, and, above all, a system for handling your cash!

There's where the trouble is—throwing the money into the drawer with no record kept. Paying it out again the same way, and never knowing the amount that should be there.

A careless, easy-going, reckless way, that eats up profits, destroying the very life of business.

DISPLAY HELPS FOR THE DEALER

There are many devices which are supplied by accessory manufacturers to their dealers for the better display of merchandise. One is illustrated herewith. Manufacturers who supply these devices are urged to forward photographs or sketches of them.



The EverGood bumper display stand is substantially constructed of malleable iron, with the extension arms similar in shape to the front ends of the frame of a car. The bumpers mounted on these arms can be adjusted to a number of different positions, in order to show prospective buyers the adaptability of the bumpers to various makes of cars. It is finished in black enamel, with a metal sign lithographed in red, green and white. The bumpers are nickel plated. The stand catches the eyes of customers visiting the store, and very often, even if they do not consider they should immediately purchase bumpers, they can hardly excuse themselves from purchasing from such an inviting display. The total shipping weight of the stand is about 250 lbs. Its dimensions, including crate, are 70 in. x 65 in. x 25 in. The Emil Grossman Mfg. Co., Brooklyn, N. Y., supplies it.

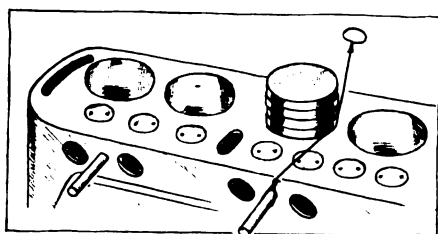
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Compressing Piston Rings

(No. 343)

A simple method of compressing the rings when inserting the pistons into a cylinder with detachable head is to use a flexible wire loop, as shown. The wire is fastened to the cylinder at one end and the other is pulled tight, thus compressing the ring.



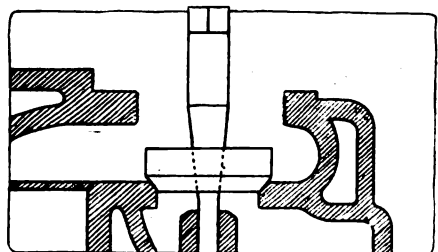
(No. 343)

A wire will hold the rings compressed

To True Valve Seats

(No. 344)

The illustration shows a cutter for trueing valve seats. It is a taper fit on the shank which goes down through the valve guide. By having a variety of shanks and cutters it is possible to com-



(No. 344)

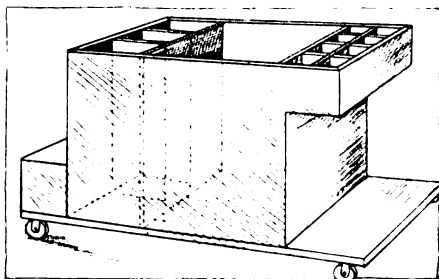
Valve seats can be trued with this cutter

bine the two so that a tool for any motor may be had in a moment.—John R. Price, Newark, N. J.

Traveling Parts Box

(No. 345)

"A place for everything and everything in its place" is most important when overhauling a car, and this idea can best be carried out by providing a box with suitable compartments and mounted on casters. The one shown has a large space in the center for big units such as wheels, radiators, axle housings and the like. There is a series of compartments for small parts, such as nuts, bolts, carburetor and magneto assemblies and parts, and spaces for larger units, such as axle shafts and steering gear parts. The pistons and rods are housed at one end and the cylinders at the other.—W. Wood, Packard Motor Car Co., Newark, N. J.



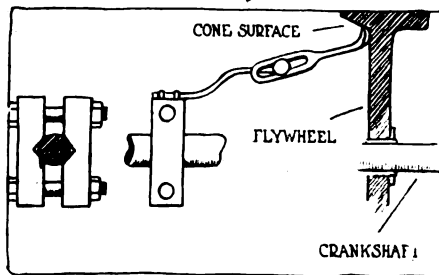
(No. 345)

A parts box on wheels that can be moved about

Centering the Clutch

(No. 346)

Herewith is shown a tool for centering the clutch with the flywheel. It consists of a clamp which goes around the driven shaft and which carries an adjustable arm. When the clutch shaft is in alignment this pointer should just make contact at every point on the interior surface of the flywheel.



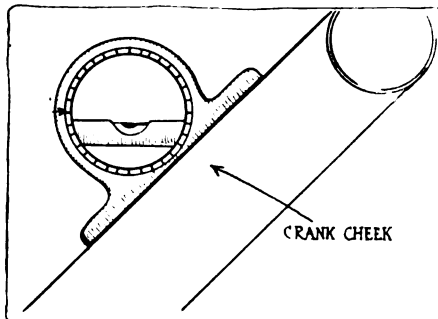
(No. 346)

A scriber for centering the clutch members

Level to Set Valves

(No. 347)

A spirit level, designed to measure inclined surfaces is an excellent device with which to set the valves when the timing is given in degrees. It is placed on one of the cheeks of the crankshaft, as shown.



(No. 347)

How a spirit level can be used for valve setting

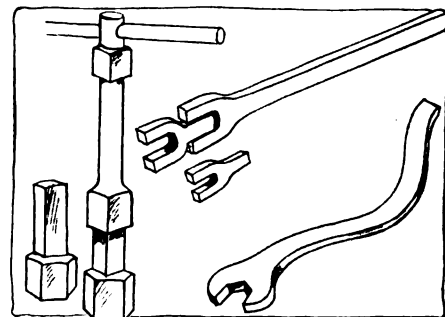
and the inside ring which carries the spirit level is adjusted to the proper angle, which might be 47 degrees, for

example. A helper slowly rotates the crankshaft until the bubble lies exactly in the center of the glass. At this point, for instance, the exhaust valve should just be ready to open.—W. Wood, Packard Motor Co., Newark, N. J.

Master Socket Wrenches

(No. 348)

Master wrenches are very useful for either the socket or solid wrench types. The various sized sockets and the master wrench is really only a handle. It has a nut on the opposite end which permits an ordinary solid or end wrench to be used in tightening the nut or bolt.—W. Wood, Packard Motor Car Co., Newark, N. J.



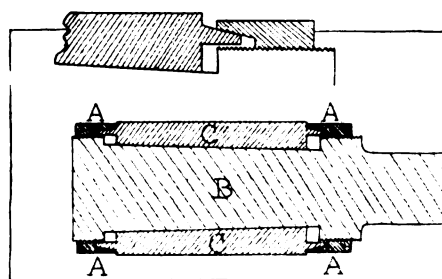
(No. 348)

Master socket wrenches are handy about the shop

Simple Expanding Reamer

(No. 349)

An expanding reamer and lapping tool that is particularly adapted for large work, such as rethreading the valve cap holes or gearset bearing caps, is shown herewith. The change from tap to reamer is made by merely substituting one set of cutters for another. The cutters, C, are carried in slots in the shank, B.



(No. 349)

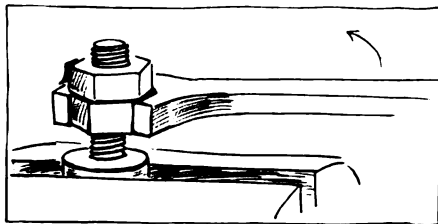
It is a simple matter to make an expanding reamer

and are solidly held in place by the collars, A, at each end. The expansion of the tool is accomplished by moving the cutters to the left as the slots are inclined. This is done by unscrewing the collar, A, at the left and tightening the collar at the right the same amount.—John R. Price, Newark, N. J.

Removing a Stud

(No. 350)

The removal of a stud is easily accomplished without injuring the threads by screwing two nuts on it, jamming them firmly together and applying a



(No. 350)

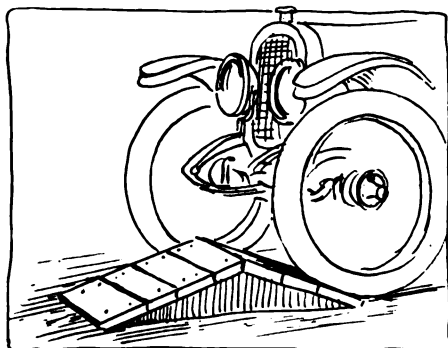
A tight stud can be removed in this way

wrench to the lower nut. Obviously the stud can be screwed in by the same plan, applying the wrench to the upper nut, however. If the nuts do not hold, jam them together more tightly, using two wrenches.

How to Find Squeaks

(No. 351)

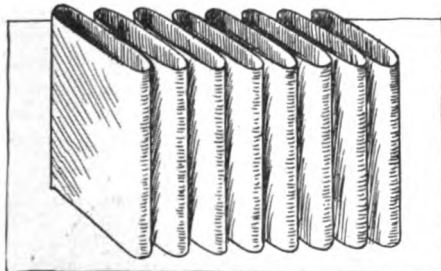
Elusive body squeaks can be located with a minimum of trouble by running the car back and forth over a wooden



(No. 351)

Find the squeaks by running the car over a bump

"bump" about 8 in. high. This method is preferable to trying the car on the road because it is easier to listen for the squeak and there is no danger of the mechanic hurting himself in climbing around the car.—W. Wood, Packard Motor Car Co., Newark, N. J.



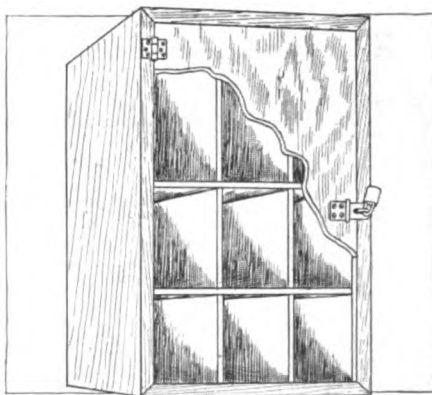
(No. 352)

Tobacco cans soldered together make catch-alls

Tobacco Can Containers

(No. 352)

Tobacco cans arranged in a row, as shown, are excellent for housing small parts, such as machine screws, nuts and washers.—Roy Dahlquist, Auto Maintenance Co., Newark, N. J.



(No. 353)

Padlocked compartments are useful and easily made

Padlocked Compartments

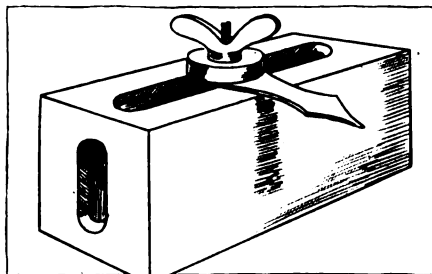
(No. 353)

Every repairshop should have padlocked closets for loose articles taken from the cars. In each closet there should be three compartments, one for clothing and robes, one for lamps, horns, tools and other small items, and one for large parts, such as spare wheels and tires.—W. Wood, Packard Motor Car Co., Newark, N. J.

Drawer for Parts

(No. 355)

A drawer for housing small parts, such as screws and nuts, can easily be made as shown. The drawer is first divided into several strips by light wood partitions and then these are sub-divided by taking a piece of sheet metal equal to the width of the strip and bending it into sections, as illustrated.



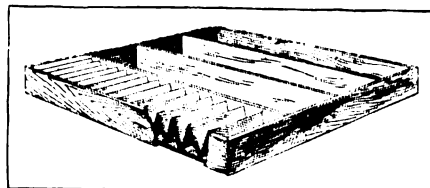
(No. 354)

A block of steel with a pointer makes a good scriber

A Homemade Scriber

(No. 354)

A simple scriber which may be used in connection with a surface plate is shown herewith. It is merely a block of steel with all six sides accurately made



(No. 355)

The front compartment is merely tin bent as shown

and with the scribing arm adjustable. The device may be used standing on end or on its side, as required.—Roy Dahlquist, Auto Maintenance Co., Newark, N. J.

Reaming Wristpin Bushes

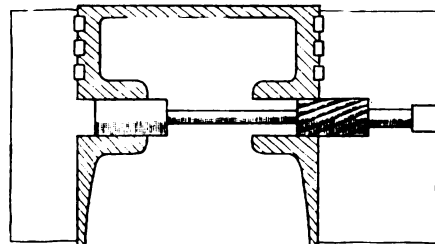
(No. 356)

Reaming of wristpin bushings can be done very quickly with the tool shown. The reamer is placed at one end of the tool, there being a pilot at the other which slips into the opposite piston boss and thus guides the tool. When one boss is reamed the tool is reversed and the other one is done. Since the pilot is smaller than the finished hole a bushing must be used to guide the pilot in the second half of the job.—John R. Price, Newark, N. J.

Handy Tap Wrench

(No. 357)

A tap and reamer wrench which is adjustable and yet simple and easy to make is shown herewith. It consists of two



(No. 356)

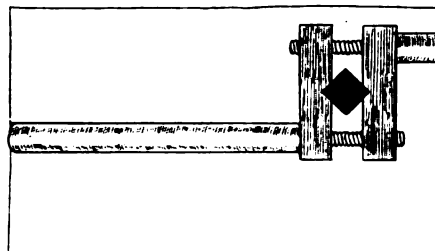
Here is a reamer for wrist pin bushings

blocks with handles threaded into them as indicated.—Roy Dahlquist, Auto Maintenance Co., Newark, N. J.

Handy Riveting Dolly

(No. 358)

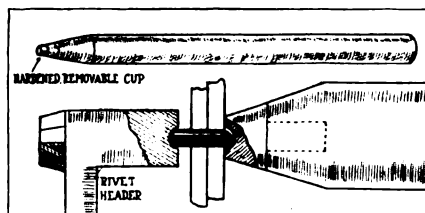
A handy riveting dolly may be made out of a heavy piece of round steel stock, say 2 in. in diameter. One end is tapered and into the point fit various sized cups made of hardened steel for various sizes of rivet heads. The dolly holds the rivet in place, as shown, while



(No. 357)

A tap and reamer wrench is easily made

the other end of the rivet is headed over. A convenient form of rivet header is also shown.—W. Wood, Packard Motor Car Co., Newark, N. J.



(No. 358)

This riveting dolly has several tips

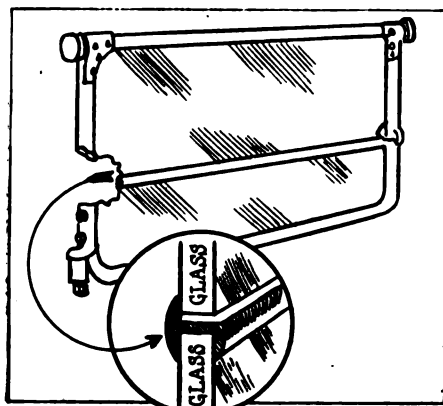


ACCESSORIES & SUPPLIES :

MCCORMICK WEATHERSTRIP

Robinson Mfg. Co., Louisville, Ky. PRICE, dealers, \$10.80 per doz.; retail, \$1.50 each.

This weatherstrip is made of rubber



McCormick weatherstrip for windshields

and is designed to prevent the rain coming in between the upper and lower halves of the windshield. It may be attached to either the upper or lower half of any windshield.

OXY-ACETYLENE OUTFITS

The Searchlight Co., Chicago. PRICE, \$50.

A complete oxy-acetylene outfit for welding and cutting is put up in a case, the set including the following items: 20-in. welding torch with 7 tips and hose connections, 3½-in. acetylene regulator with 300-lb. and 50-lb. gauges and connections, 3½-in. oxygen regulator with 3,000-lb. and 150-lb. gauges and connections, 10 ft. high-pressure black acetylene hose and clamps, 10 ft. high-pressure white oxygen hose and clamps, wrench, goggles and instructions. The

weight of the outfit is 28½ lbs. The oxygen regulator may be used in connection with a cylinder decarbonizer, which is furnished at extra cost.

SIMON'S DIM-A-GLARE

Simons Mfg. Co., Vallejo, Cal. PRICE, 25 cents per tube.

Dim-A-Glare is a paste that is applied to the glass and once it is put on cannot be rubbed or scraped off, it is said. Either the whole or part of the glass may be treated.

COMMERCIAL FORD BODIES

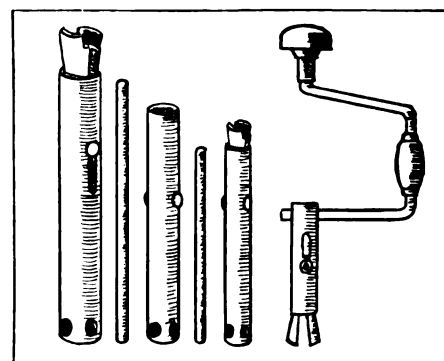
Henney Buggy Co., Freeport, Ill.

A complete line of commercial bodies for Fords is manufactured, ranging from an open flareboard body which is attached at the rear of the regular run-about body, and lists at \$18.75, to full panel types, of sheet steel construction, which are priced up to \$99. A general utility body is designed for both delivery and passenger work and is of the box type with canopy top and side curtains. For carrying passengers side seats, back-rests and a rear step are attached and are easily removed. Seats and back-rests are neatly and substantially upholstered. Framing is oak, heavily ironed, with solid slatted top covered with heavy rubber cloth. The roll-up curtains are of No. 8 army duck. The body is 40 in. wide, 64 in. high and 54 in. high back of the driver's seat. Weight, 392 lbs.

UTILITY SOCKET WRENCHES

Hill Pump Valve Co., Chicago. PRICE, wrench set, \$2.50; demountable rim wrench, \$1.50.

There are three wrenches, 5-, 6- and 7-in. in a set, and each is adjustable according to the position of the jaws in



Utility adjustable socket wrenches

the end of the wrench tube, as shown, and this position is determined by a pin which slides in a slot in the tube. Any hexagonal nut from 5/16 in. to ¾, and square nuts from ¼ in. to 13/16 may be fitted. A similar wrench, but provided with a brace handle of the usual type, is offered for removing demountable rim nuts.

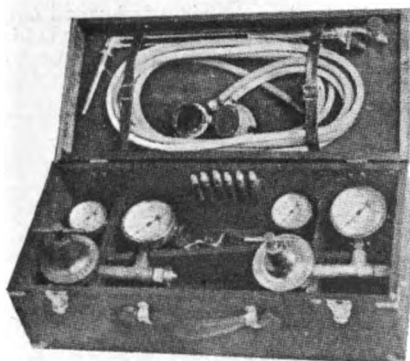
TOMARIN LICENSE HOLDER

Wm. Tomarin, 925 Race street, Cincinnati. PRICE, 75 cents. DEALERS, dozen lots, \$4.50; hundred lots, \$30.

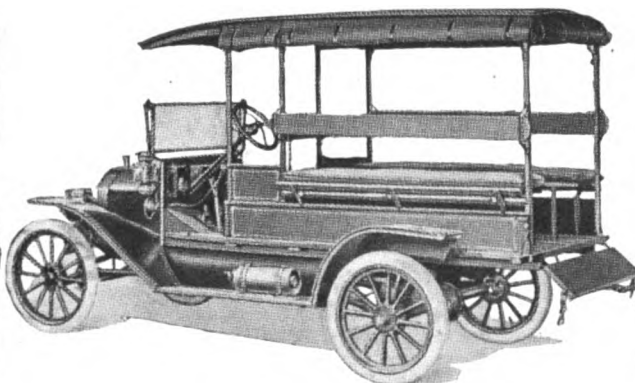
A stout steel bar is arranged to be bolted down by the radiator holding bolts of the Ford and extends across the lower part of the radiator. Sliding clamps are adjustable to any width of license plate.

How Much Money Did
You Take in Yesterday?

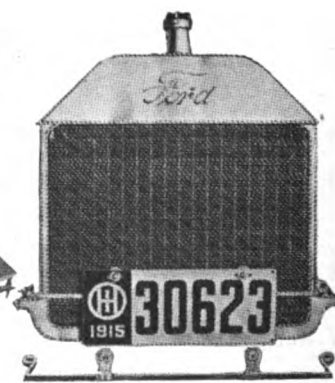
Page 5



Searchlight oxy-acetylene outfit



Henney Buggy Co.'s Ford body

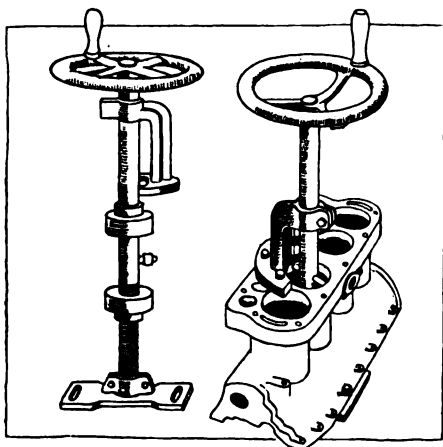


Tomarin license bracket for Fords

HEISER REBORING TOOL

Heiser Special Tool Co., Kingston, Mo. PRICE, \$70.

A special tool is designed for rebor-ing Ford cylinders only when they have become worn out of true. It consists of a boring bar, carrying the cutting tool, which is guided at top and bottom, and a screw feed which leads the cutting tool down through the bore; the device is actuated by a hand crank at the top. The upper guide is fastened and at the same time located by the cylinder head bolt, and the lower guide is held at the bottom by the crankcase bolts. This method of fastening ensures accurate alignment. The makers state



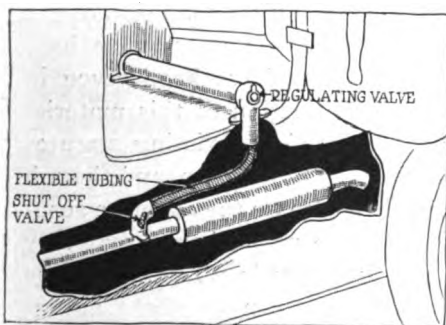
Heiser rebor-ing tool for Fords

that a car owner can rebo-re his own cylinders in about 90 minutes. The Heiser company is prepared to furnish Ford pistons .015 or .030 oversize, complete with rings, pins and bushings, for \$1.50 each.

UTILITY EXHAUST HEATER

Hill Pump Valve Co., 18-20 East Kin-zie street, Chicago. PRICE, \$15.

This heater consists of a tubular foot-rest through which part of the exhaust is allowed to pass, after which it escapes into the air. A small pipe is tapped into the exhaust pipe ahead of the muf-fler and is led to one end of the heater-footrest; a regulating valve is inserted at the junction. The waste pipe at the other end of the heater completes the equipment. The boring of two small

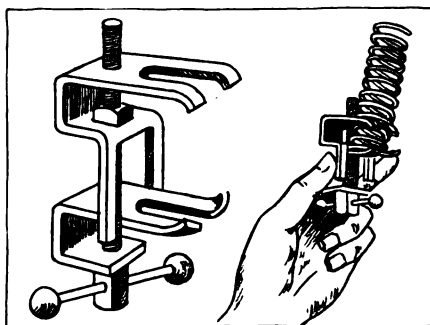


Utility exhaust-operated heater

holes in the floorboard and the drilling and tapping of the exhaust pipe and the screwing of the heater to the floor are the only operations required for installa-tion.

EAGAN SPRING COMPRESSOR

Fred. Gabriel Auto Supply Co., 1165 Bedford avenue, Brooklyn, N. Y. PRICE, 60 cents. DEALERS, lots of 12, 25 per cent; 25, 25 and 5 per cent; 100, 33 1/3 per cent.



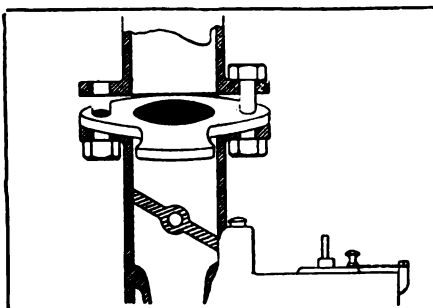
Egan valve spring compressor

A valve spring compressor for Fords or other small cars. It is made of sheet steel, hardened, and has forked arms one of which is placed under the spring cup and the other as high as it will go in the convolutions of the spring. By oper-ating the screw handle at the bottom the spring is easily compressed until the pin can be removed.

JOSWICH SCREEN

F. Joswich Mfg. Co., 384 Cedar street, St. Paul, Minn. PRICE, \$3; DEALERS, 50 per cent.

This is a gasket designed for inser-tion between the manifold and the car-



Joswich intake manifold screen

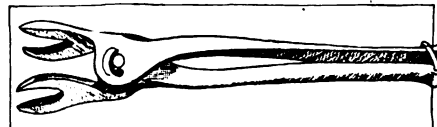
bureter, containing a wire gauze screen for breaking up solid particles of gaso-line. The gasket has slots instead of bolt holes, so that to insert it the bolts are loosened, not removed, and the device slipped in. The screen is said to prevent the passage of flame down the pipe when the motor backfires.

BARCO VALVE LIFTER

Barco Brass & Joint Co., 222 West Illinois street, Chicago. PRICE, \$1.

This tool is of the tongs type, having

two jaws each forked to pass the valve stem. The tool is opened, one jaw slipped over and the other under the valve spring, the jaws closed and held



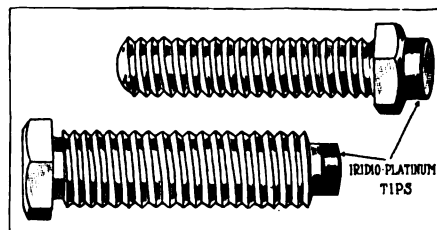
Barco tongs type valve lifter

by a catch in the ends of the handles, and the valve pin removed. Any ordinary size of valve spring can be compressed. The tool is of malleable iron.

IRIDIO-PLATINUM TIPS

R. & H. Platinum Works, 100 William street, New York.

Contact screws and rivets with welded-on tips of iridium-platinum alloy are manufactured by this concern; the weld-



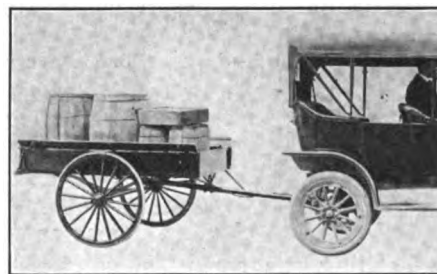
Iridio-platinum tipped contacts

ing process is such that all the expensive alloy can be used up. The illustration shows two of the many styles that are stocked. Unusual forms or sizes can be made up to order; tips can be made of any desired degree of hardness within the range of the alloys.

LION ECONOMY TRAILER

Lion Buggy Co., Cincinnati.

A trailer having a capacity of 1,000 lbs. is mounted on two wheels 34 in. in di-iameter with 1 1/4 in. solid rubber tires and running on Timken roller bearings.



Lion 1,000-lb. trailer

The axle is of 1 1/4-in. steel. The body is 42 x 72 in., of box form and has 8-in. panels and heavy hardwood sills, braced and ironed. Hardwood flare boards and a tail gate are fitted. A coupler is used for attachment to the rear of the car, and this is done without injuring the finish of the machine. The weight of the trailer is 375 lbs.



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Sell the Car

FEW salesmen talk enough.

This seems contrary to the popular conception, but it will bear investigation. To make this plain, it is necessary first to examine the state of mind of the average purchaser. He is in the market for a car; he has been shopping around; he has accumulated a few bits of knowledge from one salesman and a few bits from several others.

So—when he enters a salesroom, he likes to air what knowledge he has. He speaks nonchalantly of unit power plants, floating axles, overhead valves. In fact, he leads the talk. He literally forces the salesman to talk about the things he knows all about so that he can show off his own knowledge.

And what is the result? The salesman thinks: "Well, here is a fellow who appears to know a lot about cars; guess I had better let him do all the talking; he'll sell himself the car."

But this is where the salesman makes his mistake. The man will not sell himself the car. He will only take up the salesman's time and waste his own.

What the salesman must do in this case is **SELL THE CAR**. If more salesmen buckled right down to selling the car in such cases, instead of merely swapping what passes for knowledge, there would be fewer shifts in selling forces.

Help the Leaders

WHEN the history of the dealer and garage trade is written, certain names that today are well known will be marked upon that history's pages as benefactors of the industry. Their names will stand

beside those of the fathers of the motor car. These men are those who today are working so hard for organization.

There are a number of organizations today that are making good progress, but their progress might be better. It would be better, too, if these leaders got a little more help from their comrades. It is not fair to throw the whole burden of the work upon a few men, especially when the work these men are doing is for the benefit of all.

Every dealer and garageman should stop and ask himself what he is doing to help the cause. Analyze the support he has given and see what it amounts to. If it consists only of attending about one meeting a year and failing to answer letters the rest of the time, he is in position to boost his batting average several thousand per cent.

More Men

IT IS pretty well established that a dealers' association or a garagemen's association is a good thing. Every one knows that each individual member gets some good from the association.

But what individual members do not seem to realize is that the good they can get from their association is in a large measure proportional to the size of the association. If there are 20 members, each man has the opportunity to hear the experience of 19 others on a certain question. If there are 40 members, there is twice as much experience to draw from.

Another thing—there is strength in numbers. An association of 100 men can accomplish more because of its weight and importance than can an association of half that number.

It is not sufficient that a dealer or a garageman join the association in his city. After joining he should then get out and hustle for other new members. Bill Jones, across the street, may have an idea that will be worth dollars and cents to you; and if you can get him in the association he will tell you about it.

Lien Laws

IN Motor World this week there appears a compilation of the various laws in all states which give the dealer and the garageman a lien on a car for services rendered and for material, accessories, etc. The question of whether a garageman has such a lien is in many cases problematical due to the chaotic condition of the laws. In such cases it has been necessary to base assumptions on decisions which have been given in the various courts. The compilation of this material has required a careful search of all existing statutes and the reading of thousands of decisions, and though every effort has been made to ensure the absolute accuracy of the digest, it must be remembered that new decisions constantly are being made which will have direct bearing, and may perhaps make slight alterations necessary in the digest as published.

Motor World Simplified System of Accounting

For Dealers, Garagemen, Repairmen, Supplymen and Other Members of the Retail Division of the Motor Car Industry

ON THIS PAGE is shown the only book you require in using the Motor World Simplified System of Accounting.

This book is 14½ in. long, 11½ in. wide. It is a loose-leaf binder type and you can have as many pages in it as you want.

No matter how small your garage, no matter how small your business as a dealer, this one book is all you need in this system. If you sell gasoline only it will meet your requirements. If you conduct solely a tire repairshop it will meet every requirement. If you sell gasoline and repair tires it will do equally well.

Further, if you sell gasoline, repair tires, sell accessories, and store cars, this book will meet your requirements.

This book will last a lifetime. All you have to do is buy more loose-leaf pages and add them as needed, removing the filled-up pages as your business requires.

There are only three different kinds of forms in this book. One form is for you to record your income. Another form records all of your expenses. And on the third form you have a record of all your accounts with your customers. These forms are all in the one book under the one cover and on the same sized page.

By looking at one page of your income account you are able to find the income from each department for each day. To explain: If you sell gasoline, sell accessories and make repairs, you can see the income

from any one or all of these accounts at the end of any day.

This book will show you the amount of cash you have received in

not even getting interest in return. This is the condition that has bankrupted most of the garagemen in the country.



THE ONLY BOOK required in the Motor World Simplified System of Accounting. It is 14½ in. long, 11½ in. wide

your business during the day. It will also show you the amount of cash you have paid out. At a glance you can see where your cash stands each night.

One of the greatest errors that the small garageman and dealer makes is that he gives too much credit to his customers. He sells too much gasoline and too many accessories and doesn't get paid for these for several months.

He does repair work and has to pay his men each week, but doesn't get pay from his customers for three months perhaps. If you have plenty of cash in the bank and plenty of credit at the bank you can keep on doing this for a certain time. Sooner or later, however, you will find you have not enough cash to pay your own bills. You have loaned all your money to your customers and are

you will be sued or the company will refuse to sell you any more.

Our system does not tell you how to collect debts, but it does tell you each day how much of your debts you have collected and how much of your money your customers are making use of. It tells you each day how much your customers are indebted to you.

Are your repair expenses increasing each month?

Are your repair expenses decreasing each month?

Is your income from car storage increasing?

Is it decreasing?

WHAT IS YOUR OVERHEAD EXPENSE?

These questions can all be readily answered by Motor World's Simplified System of Accounting. The story is on page 5. Read it!

"How much credit business have I done today with my customers?"

One glance at your income sales record will show you this each day. This is a safety valve in your business. If you do too big a credit business each day you will go broke. You may be able to carry your customers' accounts for months, or perhaps years, but unless you make collections you will eventually go broke.

Let us look at the other side of the question:

You buy gasoline; you must pay for it, or soon

The RETAIL NEWS

NORTHWEST

The Racine Rubber Co. has opened a branch in Des Moines at 803 Locust street. Ray W. Duff, who formerly traveled out of Minneapolis for this company, has been made manager.

The Accessory Sales Co. has opened up in Des Moines at 807 Locust street and after January 1 will occupy a new two-story building at 1215 Locust street. The officers are: President, John D. Farrell, Chicago; vice-president, John Weber, Des Moines; manager, J. A. McCoy, Des Moines. Directors, I. R. Stubbs, F. J. Pettit and the officers.

The Northwest Hupmobile Co., Minneapolis, has been organized with S. D. Briggs, formerly with the Pence Automobile Co., as manager. The new company will handle the wholesale distribution of the Hupmobile in North Dakota, the eastern part of Montana, Minnesota and the western part of Wisconsin.

The Roller Motor Co., St. Paul, is erecting a one-story brick and stone garage on West Sixth street near Smith avenue, 50 x 70 ft., to cost \$2,000.

The Brahy-Frei Auto Co., 825 Selby avenue, St. Paul, newly organized, has taken the Auburn agency. W. H. Frei, in the automobile trade several years in St. Paul, is to manage the firm, which has a garage, machine shop and showrooms.

The Clemens Auto Co., Des Moines, Ia., has let the contract for a four-story garage and salesroom. The cost will be \$40,000.

H. B. Groveer, Grafton, N. D., is constructing a pressed brick and tile garage, 50 x 100 ft.

Peter Matson, Norman, Minn., has taken the Maxwell agency and will erect a garage, 50 x 75 ft.

The Bren Auto Co., Hopkins, Minn., has begun the erection of a garage at Excelsior and Seventh avenues.

J. T. Anderson, Dassel, Minn., has sold his interest in the Anderson-Millberg garage to his partner.

D. W. Roderick, Wells, Minn., proprietor of the Wells Garage, has taken the Hudson and Overland agencies.

The Folkens Auto Co.'s garage and salesroom, 324 North Phillips avenue, Sioux Falls, S. D., has been taken by Lind Bros., Centerville, S. D., who will distribute the Oakland.

The Central Co., Duluth, Minn., will erect a garage at 318 West First street.

M. S. Elliott, Paynesville, Minn., has bought the Witt garage.

H. LaBarre, Fort Benton, Mont., has begun the erection of an \$8,000 garage, 55 x 120 ft.

C. J. Zweig, Huntley, Mont., is building a garage, 25 x 50 ft., in connection with his blacksmith shop.

Perham & Riley, 22 East Quartz street, Butte, Mont., Cadillac distributor, is erecting a \$13,500 garage.

Thomas Smith, Madison, S. D., is erecting a one-story garage at Harth avenue and Fourth street, 75 x 132 ft., to cost \$15,000.

Johnson & Johnson, Gibbon, Minn., have opened a garage.

Edward Nelson, Willmar, Minn., owner of the Willmar Garage, is remodeling it.

The Key Auto Co., Huron, S. D., has been sold to C. E. Alford, of Redfield, S. D., and

the name changed to Alford Overland Co. Horace Key, who has operated the Key Garage, will open a salesroom and continue to sell the Buick.

E. W. Barrett, Huron, S. D., has bought the F. A. Castle garage.

Connelly Bros., Lawton, N. D., have bought the Dvorak building and will use it as a garage.

Frank Sharman, Belfield, S. D., has taken the agency for the Studebaker.

A. L. Wilson, Pierpont, S. D., has opened the Pierpont Garage.

Melbrecht & Wringer, Monroe, S. D. has bought the John Busher Garage.

Olger Kvernes, Howard, S. D., has bought the Howard Auto Supply Co. from Hanson & Lee.

F. E. Hutton, Egan, S. D., has begun the erection of a garage with a blacksmith shop and wagon shop, 50 x 100 ft., of cement.

A. B. Larson, Egan, S. D., has taken the Overland agency.

W. E. Davis, Egan, S. D., has opened a garage.

Carl Lindstrom, Goodridge, Minn., is erecting a garage, 38 x 50.

Thomas Cullen, Jr., Comfrey, Minn., Buick dealer, is building a brick garage.

Meyers & Bennett, Ellendale, Minn., operator of the Motor Inn Garage, has dissolved partnership, Meyers acquiring Donald Bennett's interest.

Griffith Bros., Conrad, Mont., are erecting a garage.

Ellithorp & Arens, Hazelton, N. D., are building an addition to their garage and blacksmith shop.

Olaf Larson, Pingree, N. D., has bought the Archie Hicks garage.

M. Vinger and Lee Benshoof, Hurdsfield, N. D., are erecting a garage, 32 x 80.

The Hudson & Thurber Co., 308 Third avenue, N., Minneapolis, has added a stock of accessories and has acquired the exclusive agency for Timken roller bearings.

The Wilcox-Bennett Carburetor Co., Minneapolis, will erect a two-story brick garage at 1024 Ramsey street to cost \$4,000.

The Metropolitan Motor Co., 1110 Harmon place, Minneapolis, has taken the agency for the Princess.

Otto Hesselman, Dyersville, Ia., will open a garage in the Reiff building on Main street. He will build a large new garage, covering two lots next spring.

Petheram & Yeakel, Kanawha, Ia., is building an addition to its garage which will afford 2,000 additional feet of floor.

D. A. Newton, Arlington, Ia., will open a garage in a new building just completed. He has had previous garage experience at Leon, Ia.

Raymond Gordon, Seymour, Ia., has bought a site for a new garage and will at once erect a new building, 50 x 80, of tile brick with stucco front, for E. E. Davis, who will conduct the garage and car sales business.

P. G. Ratcliffe, Humeston, Ia., has sold his farm and will move to Humeston, where he will enter the garage trade in a new building now in course of construction.

Hougas & Midgorden, Lamoni, Ia., has dissolved. Midgorden retains the garage part of the business and Hougas takes over the manufacturing branch. He will equip an exclusive machine shop and will manufacture radius rods and other parts.

C. E. Conger, Bristow, Ia., has moved into a new garage.

Clouss Bros., Clare, Ia., have bought a lot and let a contract for a garage. They will enter the garage business as soon as the building is finished.

Loman's Garage, Carpenter, Ia., now located in a wooden building, soon will be moved to a new fireproof garage, 44 x 80, and built of cement blocks, which is now nearing completion.

B. Aurand, formerly of Republic, Ia., will open a new garage in Ionia, Ia., in a building now being fitted for his business.

Jesse Livingood, Osceola, Ia., has bought from Pearl Lingle the West Side Garage.

The Osceola Auto & Garage Co., Osceola, Ia., has sold out to Swedenberg Bros., of Omaha; the new comers have taken possession.

Lafe Hawn, Wadena, Ia., is building a new garage and will enter the trade.

J. W. Azeltine, Lake Park, Ia., will enter the garage business. He has traded his farm for a garage.

H. L. Dehner and A. V. Devlin, Cascade, Ia., will move their business into a new fireproof garage within a few weeks.

Lew Troutman, Derby, Ia., has purchased a lot, on which he will build a garage.

The Pearson Auto Co., Swea City, Ia., is building a showroom in its garage.

The R. J. Grover Auto Co., Burt, Ia., will build a cement block garage, 50 x 100, next spring.

J. J. Weiterien, Oneida, Ia., has sold his farm and moved to Edgewood, Ia., where he joins his sons in handling the Reo and Saxon and repairing.

Gardner Smith, Davenport, Ia., has taken the agency for the Ford in St. Charles, Ia. He is located in Wise's Garage.

The Riverside Auto & Machine Co., Cedar Rapids, Ia., will build a modern garage and machine shop, to be completed by January 1, at 123-125 14th avenue. It will be two stories high with a combined salesroom, office and store room, 48 x 100, and a repair-shop, 20 x 48. The concern seeks agencies for a medium-priced car and a high-priced car. T. R. Wilkinson and O. J. Jirsa are the proprietors.

The J. M. Wilson Auto Co., Sheldon, Ia., is remodeling its garage to provide offices and showrooms with steel ceilings and re-decorated walls.

The Iowa Auto Co., Muscatine, Ia., a new company, has bought the Grimm Garage at Fourth street and Iowa avenue. The members of the new company are William Lamprecht, formerly of Marengo, Ia., and A. A. Schuessler, a leading Muscatine automobile man.

Sullivan's Garage, Marengo, Ia., is rapidly nearing completion.

John Osterhus, Ruthven, Ia., will open a garage there in a building which he is remodeling. He will call it the Ford Garage.

MOUNTAIN

J. S. Morrison, 1528 Broadway, Denver, Dort and Oakland distributor in Colorado, Wyoming and parts of Nebraska, Kansas and New Mexico, has recently appointed

All Under One Cover

Page 5

about forty new agencies for the two cars. He states that business prospects throughout his territory are good.

E. L. Best, Alamosa, Col., Dort dealer, has built a new garage.

The Hupp Motor Sales Co., 1260 Broadway, Denver, Hupmobile and Locomobile distributor in Colorado and Wyoming, has established twenty new agencies and service stations for the Hupmobile.

The Willey Auto Co., Hartman, Col., Dort dealer, recently completed a new garage.

William Fahrenbrink, Brighton, Col., has taken the Hupmobile agency.

The Elquist Hardware Co. & Garage, Torrington, Wyo., is now selling the Oakland.

Dr. Harold Smith, Cortez, Col., has taken the agency for the Dort.

George Misch, Gallup, N. M., has recently contracted to handle the Oakland.

A. P. Curtis, Granby, Col., is now the Grant dealer in that town.

Markham Bros., Otis, Col., have taken the agency for the Briscoe and Argo.

The Newman Auto Co., Boulder, Col., has been made Oakland dealer in Boulder county.

The Henderson Garage, Henderson, Col., has taken the Hupmobile agency.

A. F. & A. B. Hall, Towner, Col., have secured the Grant agency.

G. J. Lackey, Rocky Ford, Col., is now handling both the Dort and the Oakland.

The Rock River Garage, Rock River, Wyo., has contracted to represent the Hupmobile.

E. H. Davies, Crozier, N. M., is now agent for the Oakland.

The Arapahoe Garage, Littleton, Col., is putting in foundations for a 50 x 130 ft. extension.

PACIFIC COAST

The V-Ray Co., Marshalltown, Ia., has opened a branch in San Diego; it is under the management of B. W. Sinclair, vice-president of the company.

Knight & Burt, Azusa, Cal., has added a stock of tires and accessories. The garage has a big repair business also.

The Willard Storage Battery Co., Cleveland, has opened a branch office in Seattle in the Joshua Green building, in charge of J. P. Schiller, Jr.

The Helde & Sweeney Auto & Machine Works, Tacoma, has opened up at 2524-26 South E street. It will handle tires, accessories and used cars.

William B. Weiss, Los Angeles, is now operating the Los Angeles Auto Equipment Repair Co. at Pico and Olive streets.

Don Lee, Los Angeles, California Cadillac distributor, has opened a used car department at 1212 South Main street, Los Angeles.

The Earl P. Cooper Co., Los Angeles, Wisconsin motor distributor, has moved to Pico and Grand avenues.

R. E. Hopkins, Ford dealer, Blythe, Cal., has purchased the Blythe Garage from Walsh & Bennett and will operate it.

F. B. Miller, Los Angeles, has established an Overland service station and garage at 1140 South Hope street.

C. S. Ryker, Los Angeles, has opened a tire store and rubber repairshop at 112 West Washington street. Ryker also carries a stock of oils, greases and accessories.

The Acme Radiator Mfg. Co., Los Angeles, has taken a new location at 110 West Washington street.

Riddle & Paddel, Los Angeles, has opened a garage and supply store at 1840 South Main street.

The Carlton-Faulkner-Bowles Co., Los Angeles, southern California distributor of the

Fiat, Jeffery, McFarlan and Marmon, is soon to erect a new building in which the service, paint, upholstery and used car departments and general offices of the company will be housed. At present the concern operates two establishments and with the erection of the new building intends to concentrate all the departments.

R. C. Garland, Los Angeles, has opened a tire supply store and repairshop at 542 West Washington street.

George Kerth and Charles Hopping, Portland, have opened the King Street Garage at King and Washington streets.

The Studebaker Garage, Pasadena, is preparing to move into a garage building now being rushed to completion on East Colorado street between Euclid and Worcester.

Crawford & Kellogg, Los Angeles, has opened an automobile brokerage business at 804 Olive street. The firm is doing an extensive business in parts and accessories.

Thomas H. Hatchard, Pasadena, is preparing to erect a garage at East Colorado and El Molino streets. The building is to be occupied by the Pasadena branch of the J. W. Leavitt Co., coast distributor of the Overland and Willys-Knight.

McCay & Reichmann, Los Angeles, has opened a tire and supply house at 511 West Washington street.

J. Lynward Grahame, Upland, Cal., has opened a supply and accessory store. For the past four years Grahame has been manager of the Upland Auto Co. A large stock of Lee tires, oils and greases is carried, in addition to a general line of accessories.

EAST

The Langley & Guertin Co., Watertown, Mass., is building a new garage at Trapelo road and White street.

The Knowles & Dow Co., Bangor, Me., has leased the ground floor and basement of the new motor building just finished for Charles W. Morse.

Thomas Powers, South Medford, Mass., is building a garage on Clayton avenue.

J. Fred Barber & Son, Westerly, R. I., proprietor of a garage on Vincent lane, has leased a store in the Bliven Opera House block for salesrooms.

Lennon & Hicks, East Boston, Mass., proprietors of the Boulevard Auto Station, have taken the agency for the Ford.

George D. Knox, Hartford, Conn., Hudson distributor, has approved plans for a new salesroom and service station at Farmington and Sisson avenues.

F. M. Clark and Mrs. R. E. Trimble, Washington, D. C., will erect a two-story fireproof garage at 326-28 New Jersey avenue, N. W. It will have a frontage of 51 ft. and a depth of 92 ft. and will have a large electric elevator. The cost will be \$10,000.

The Smith-Trew Motor Co., Washington, D. C., Oakland and Reo dealer, has removed from 829 14th street to 1337 14th street.

The James E. Anderton Auto Supply Co., 823 North Broad street, Philadelphia, has been dissolved by mutual consent. The proprietors were H. H. Meyer and James E. Anderton.

The Fleigh Motor & Tire Co., Hagerstown, Md., has rented the storeroom of F. W. Obenderfer, in Frederick, and will open a branch.

C. O. R. Kindig and D. M. Martin, Philadelphia, have organized the Paterson Motor Sales Co., to handle the Paterson. Temporary headquarters have been established at 304 Abbot building, Broad and Race streets.

Murray's Garage, 10 Seven street, Worcester, Mass., has just been opened.

R. M. Squires and Harry Hanson, New Haven, have formed a company to handle the Stutz, with salesrooms at 215 York street.

The Longley Motor Sales Co., Providence, has been made distributor of the King in Rhode Island.

The Bell Motor Sales Co., Boston, has been organized to handle the Bell car. J. C. O'Brien is the head of the company, and salesrooms have been opened at 823 Boylston street.

The Madison Avenue Garage, at Madison avenue and West Lawrence street, Albany, has opened with James McKinstry as manager.

Thomas A. Moorehead, Albany, has built a new garage on Hudson avenue near Swan street, with a capacity of 30 cars.

The Serfas Motor Car Co., Lehigh, Pa., has opened its fourth garage; it is in Pottsville, Pa., at Railroad and Mahantongo streets. The others are located in Lehigh and Mauch Chunk, Pa.

MIDDLE WEST

A. E. Bonner, Coopersville, Mich., agent for the Ford and Overland, has moved into a new garage.

E. B. Pardee and George Schoenhals, St. Johns, Mich., will open a salesroom on North Clinton avenue. They have taken the agency for the Regal.

The Calumet Garage, Adrian, Mich., has moved into new quarters on Seventh street.

Arthur Miller, Manistique, Mich., has bought what is known as the old meat market property and will have it remodeled as a garage and machine shop.

J. M. Jacobs, Battle Creek, Mich., will build a one-story garage, 66 x 130, to cost between \$10,000 and \$15,000.

C. H. Hogland, Battle Creek, Mich., Paige dealer, has taken the agency for the Page trailer, made by the Page Bros. Buggy Co., Marshall, Mich.

Reason Bros., Dexter, Mich., are to have a new garage, fronting 50 ft. on Main street, 50 ft. wide in the rear, and having a depth of 80 ft.

Charles Lee, Watseka, Ill., has sold his brick livery barn on West Walnut street to Samuel Fanyo for \$7,000. The purchaser will remodel the structure as a garage and salesroom and will handle accessories and supplies. His son, Jay Fanyo, will be manager. It is hoped to have the structure ready for occupancy by Jan. 1.

Ory & Brenneman, Carlock, Ill., has dissolved partnership, the former retiring. Arthur Brenneman will continue the business, handling the Overland and Ford.

The Mers-Frulan Auto Co., Ottawa, Ill., has been organized to operate a garage. The firm is composed of Walter R. Mers, Nelson A. Frulan and Melville W. Clark. A company has been formed with a capital stock of \$5,000.

The Diamond Motor Car Co., Chicago, has been incorporated to deal in automobiles. The incorporators are Percy R. Eckhart, Thomas G. Deering and William M. Klein.

Williams & Schumacher, Gibson City, Ill., has opened a tire repair shop under the name of the Gibson City Tire Repair Co.

Ernest A. Swenson, Milwaukee, has established a garage and repairshop at 722-724 National avenue.

The Boulevard Garage, 27th and State streets, Milwaukee, has been sold to E. J. Henning, who has arranged for an extension of the lease held by the present occupants.

Dealers' Opinions

SERVICE AND GUARANTEE CONTRASTED

Editor Motor World:

In your November 10 issue, under the subject of "Wide Awake Merchandising," you have an article entitled "Fifty Hours Service or Fifty Dollars Off the Price," and I was somewhat surprised that your paper would take the stand that service under any condition is a free service.

In the first place, if a dealer issues a customer a service card which entitles a customer to only 50 hours free service, it would appear that this car has a \$50 guarantee and that the dealer, regardless of what would go wrong with it, would expect the customer to stand the expenses, even though a \$200 defect appeared.

On the other hand, it would seem to me that the dealer presumes that service should be free service and that he is protecting himself to the extent of only furnishing \$50 free service.

Always Make Defects Good

I should say it would be much better to have a customer understand that if any difficulty turns up with his car that is not chargeable to defective material or workmanship, even though it occurs 48 hours after its delivery, the customer should pay for that service. If, however, after 6 months a defect should be shown in the car that was built into it, I think the customer should be immediately reimbursed for this part cheerfully, and, I believe, it is the only logical solution of the service question.

I do not believe it can be solved by a limited amount of service sold with the car through a service card or service coupon and the various methods we read about. I think the only solution of the service question is to render to the customer the proper and efficient service and, like any other piece of machinery, if a defect appears to take care of it cheerfully according to the circumstances and the age of the defective piece, and any service required to rectify troubles caused by the ignorance of the customer of the operation of his car through failure to lubricate or due to ordinary wear and tear, the customer should be ready to pay for such service and the operator of the garage or head of the service department should be such that he can intelligently explain to this customer just why he should pay for this service.

I think every fair-minded customer will be perfectly satisfied when he understands the dealer is fair both ways.

There will always be some grouches who will kick, but I think these people will eventually place themselves with the trade in such a position that the dealer



CARL CHANGSTROM
Allen, Omaha

District Representatives

XXXIV

This is No. 34 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

Carl Changstrom is general manager of the Standard Motor Car Co., which is district representative for the Allen car in Wyoming, Nebraska and south-western Iowa; headquarters are at 2012 Farnam street, Omaha. For eight years Changstrom was associated with the Capital City Carriage Co., which was distributor of the Jackson in Iowa during that time; he has also handled the Metz, Richmond and Detroiter at various times during his connection with that concern.

will not be anxious for their business and the dealer will have a great many more friends who will be ready to support him than he will have kickers, and in due time the kicker will come around to the proper method of reasoning and will line up with the rest of the satisfied customers in due course.

I would be glad to see you agitate a question of uniform service on an equitable line, and I think just as soon as the customer can understand that there is a policy of a uniform nature with all the dealers they will no longer complain on the question of service.

John H. Stubbe, Manager,
The Locomobile Co. of America.
Pittsburgh, Nov. 15.

FIRESTONE DEALER STAGES DEALER MEETING

PLATTSBURGH, N. Y., Nov. 15—M. P. Myers took a leaf from factory practice and held a convention of the tire dealers in the territory to which he distributes, on Nov. 11. Myers is head of M. P. Myers & Co. and is Firestone dealer. When he was at the annual convention at Akron some time ago, he decided that if it paid the parent company to bring 500 representatives from all parts of the country together for a conference and get-together meeting once a year it surely ought to pay him to hold a similar convention for the 46 dealers in his territory.

Therefore he announced a convention for Nov. 11 and sent a call to the 46 dealers. Forty-two responded, and the result was a very successful convention. The dealers were filled with enthusiasm, and will be much better tire salesmen as a result. There was a banquet and addresses were made by officials of the Firestone company. The construction of a tire was explained from start to finish

and the company's dealer policy was described in all its phases. The result of the meeting will be a closer bond between dealer and maker, a coordination of effort, and greater activity on the part of the dealer.

RELATION OF CAR WEIGHT TO ACCELERATION

NEW YORK, Nov. 19—At the meeting of the Metropolitan Section of the Society of Automobile Engineers, held at the Automobile Club of America last night, a report of the Gasoline Electric Research Committee and a paper on Car Weight in Relation to Acceleration were read. The report of the committee was given by each of the members individually, covering different sections of the work.

David Beecroft, chairman, presented a summary of the activities of the committee; L. G. Nilson, president Nilson-Miller Co., gave an analysis of the different types examined and a description of the Thomas system, and W. P. Kennedy described the wiring and circuits under different conditions in the Owen magnetic car. The paper on acceleration consisted of miscellaneous notes made by A. Ludlow Clayden based on observations on the acceleration of three typical cars.

Iowans Hear Firestone Talk

DES MOINES, Nov. 15—H. S. Firestone, head of the Firestone Tire & Rubber Co., Akron, was the central figure of a gathering of over 200 Iowa dealers in Des Moines on Nov. 10 for the celebration of Firestone Day. R. J. Firestone, general sales manager of the company, also attended. An entire day of festivities was followed by an evening banquet, addressed by the Messrs. Firestone and others.

600 Chalmers Dealers Rally for 1916

Enthusiastic Convention Staged at Factory—Buy 21,382 Cars Before Leaving Detroit

DETROIT, Nov. 17—Six hundred dealers representing the Chalmers Motor Co. in all parts of the country took the city by storm this week, and they are said to have contracted for 21,382 of the new Six-30's before they left.

Three very full days of fun and business for the Chalmers representatives ended with a banquet at the Detroit Athletic Club tonight, and it was a fitting climax to a convention which was undoubtedly the largest of its kind ever held here, if not in the industry. An army of the new Chalmers sixes transported the dealers to and from the factory and the hotels, and everything was done for the visitors to make their stay profitable and enjoyable.

Each Day Well Filled

Starting Monday morning, Nov. 15, with an opening address by President Chalmers, the convention was well under way the first day. A dinner in the convention hall of the Pontchartrain Hotel ended the opening day; on the following evening a beefsteak dinner and smoker was held at the Statler Hotel, and Mr. Chalmers' closing address on "Opportunity" at the banquet at the Athletic Club was the parting word of the gathering.

During the progress of the convention, talks were given by Isaac F. Marcosson on "The War and Salesmanship"; C. A. Pfeffer, vice-president and assistant general manager, on the "Chalmers Organization"; Paul Smith, vice-president and sales manager, on the "Objects of the Convention"; Gail F. Murphy, advertising manager, on "The Advertising Campaign"; C. C. Hinckley, chief engineer, on "The Relation of Engineering to Sales"; H. W. Miller, service manager, on "Service and Its Effect on Sales," and F. B. Willis, assistant sales manager, on "The Chalmers Selling Organization—What it Means to the Dealer."

Roadster in the Spring

Paul Smith announced that a roadster will be supplied on the same chassis as the touring model Six-30 on April 1 of next year.

A feature of the convention was a parade of 288 of the new Six-30 cars and enough other Chalmers cars to bring the total in line to over 300. This long line of cars coursed through the main streets and boulevards of the city in the afternoon of the first day, following the opening session at the factory, when the new model was revealed to the dealers. It

is said that this is the largest number of cars that a manufacturer has had ready in the history of the industry on the instance of the coming of the dealers. Following the opening session, the doors were thrown open and the dealers saw before them the long line of nearly 300 cars. Each car was tagged with the name of the dealer to whom it was allotted as a demonstrator, and the men had a merry time finding their own cars. It was like a gigantic dinner party at which each guest must hunt for his place card.

Dealer Is the Backbone

In addressing the dealers Hugh Chalmers gave them due credit for the part they have played in the development of the Chalmers' company. Eight years ago it was started here with a capital of \$150,000, and today it has a capitalization of \$8,000,000 and occupies 24 buildings on 26 acres of ground.

"Since we last met a year ago last July," said Mr. Chalmers, "much has happened in the world. At that time the entire world was at peace. Now about three-fourths of the civilized world is engaged in warfare. Much as we deprecate this war, and would pray God it may end soon, it isn't of our making, and it isn't within our power to stop it. I think we should all pause for a moment and thank God that we are American citizens; and, in the second place, we ought to be thankful that we are engaged in an industry that commands the respect of the entire country, because it has proven in these troublous times that it is not of mushroom growth but is one of the real, stable industries of the time, and it has done much to steady the hand of business during these disturbed days.

Must Continue to Grow

"While it has been a prophecy for a long time that the automobile business would result in a survival of the fittest, this is no longer a mere prophecy; it is a reality today. It is no longer possible for a company to stand still in this business, because to stand still is to retrograde. I believe that the successful companies must continue to grow bigger or else go out of business, because competition is going to be even keener in the future than it has been in the past.

"There are four great elements in the manufacturing business. These are selling, making, recording, and the management forces. While I do not wish to minimize the difficulties of making or re-

ording, or of the management, yet I can truthfully say that selling is the most important part of any business. The reason for it is quite apparent if you will study the question for a few minutes. If we make one car right, we can from that model make 1,000,000 just like it, if we choose to do so, because the making of these cars is wholly within our control. We buy the materials, put up the buildings, buy the machinery, employ the men, raise the capital, or borrow it, and with these things we can create what is called a manufacturing plant. But this plant would be a mere tombstone in activity if it were not for the selling force which makes it possible for the wheels to keep on running."

Prize for Best Dealer Ad

L. A. Van Patten, advertising director, and representing the Cheltenham Advertising Agency, New York, which takes care of the Chalmers advertising, announced that a prize of \$100 or a gold watch will be offered to the dealers in a contest for the best advertisement submitted by them. It is thought that the dealers will be able to make some excellent suggestions in this line, being better familiar with their territory and the ways and means of the people they must reach.

The Chalmers dealers and distributors were addressed by Chief Engineer C. C. Hinckley, Wednesday morning, his subject being "Relation of Engineering to Sales." He was followed by Assistant Sales Manager F. B. Willis, who spoke about "Our Selling Organization and What It Means to You."

During the afternoon there was another business session and the convention ended in the evening with a banquet at the Detroit Athletic Club, when President Hugh Chalmers made the final address on "Opportunity."

At the close of his address Mr. Chalmers was presented with a gold loving cup in the name of the dealers, the presentation being made by Mason B. Hatch, of the Buffalo Chalmers organization.

Plan Advertising Campaign

It was explained to the dealers that as part of the advertising campaign for the coming season the company plans to send personal letters over the signature of the dealer to a list of 150,000 selected prospects. They will be operated in conjunction with the company's advertising in publications. Twenty men will be kept at work in the field.

The company is organizing what it terms the Advertising Service Department for the benefit of dealers and distributors. The work will be approached in an analytical way and each bit of Chalmers advertising will be so laid out that it will be at once recognized as a Chalmers ad.

Some of the More Than 600 Chalmers Salesmen and Representatives



Paul Lattner, of Lattner Bros., Cedar Rapids, Ia., and his dealers



The Canadian contingent led by District Manager J. H. W. Mackie, extreme right, upper row



The delegation from the metropolitan district of New York with Manager Geo. Stowe at extreme right



Some of the dealers who sell Chalmers cars in Boston, led by Harry Pyke

Who Gathered at the Factory During the Three-day Convention



Michigan Chalmers dealers of the S. J. Robinson Co., Detroit, with District Manager C. H. Booth



Jim Levy, Chicago distributor, at the right of the sign, and his sales organization

Association News

MARION DEALERS ORGANIZE

MARION, O., Nov. 22—The Marion Dealers and Garage Owners Association was organized by about a score of dealers and garagemen at a meeting held in the Chamber of Commerce, Nov. 16. Attending from Columbus were F. T. Price, president, and A. J. Peoples, secretary-treasurer, of the Garage Owners Association of Ohio; Frank E. Avery, a member of the board of directors of the state association, and Fred C. Bohn and Joseph L. Steele, members of the Columbus Garage Owners Association. The following officers were elected:

President, Guy C. Stoltz; vice-president, W. F. Moyer; secretary-treasurer, H. L. Slusser. W. C. Kanable and C. E. Miller were elected to the board of directors. An application was immediately filed by the Marion local for membership in the Garage Owners Association of Ohio, which will be acted upon by the board of directors of the latter organization.

Those who united with the organization were: C. C. Brown, 751 West Centre street; Frank P. Beck, 115 West Church street; Charles Hayes, Hayes & Moyer, East Centre street; W. F. Moyer, Hayes & Moyer, East Centre street; Abel Auto Co., 229 North Main street; C. R. Bornehouse, Bornehouse & Hennly Auto Co., 258 North Main street; Cox & Burgamen, 419 West Centre street; W. C. Kanable, North Prospect street; Miller Auto Co., 207 South Main street; H. L. Titus; N. S. Peterson; Harry L. Slusser; Guy C. Stoltz.

LONG HEADS OREGON

PENDLETON, ORE., Nov. 22—Eighteen car and supply dealers of Umatilla county, Oregon, met here the past week and formed the Umatilla County Dealers Association. The following were elected officers for the coming year: President, Kyle Long; vice-president, Robert Simpson; second vice-president, J. M. Richards; secretary, G. I. LaDow; treasurer, J. L. McLain.

MILWAUKEE SHOW PLANS

MILWAUKEE, Nov. 15—The Milwaukee Automobile Dealers, Inc., has selected the week of Jan. 7 to 13, inclusive, as the date for its annual show. As for two years past, the show will be opened on Friday evening and close on the following Thursday night. Bart J. Ruddle, assistant secretary of the M. A. D., who has handled every Milwaukee show under the auspices of the tradesmen, will again be manager of the 1916 show. The association has leased the entire first floor and basement of the

Auditorium, which covers a square block and may be able to arrange for the construction of a steel-supported gallery around the arena of the big building to care for parts and accessory exhibits, which heretofore have occupied the lobby and halls separating the arena from the smaller exposition rooms.

TYLER BECOMES SALESMAN

DENVER, Nov. 22—William P. Tyler, secretary of the Automobile Trades Association of Colorado, has resigned to accept a selling position with Tom Botterill, Pierce-Arrow, Hudson and Dodge distributor. He will be succeeded as trades secretary Dec. 1 by E. W. Johnson, formerly with the Denver Auto Goods Co. and the Carstarphen Electric Co.



Emblem adopted by the National Association of Automobile Accessory Jobbers

PENCE HEADS MINNEAPOLIS

MINNEAPOLIS, Nov. 22—H. E. Pence was re-elected president of the Minneapolis Automobile Trade Association at the meeting of the Board of Directors held last week, other officers elected being: Vice-president, John Graham; secretary, F. E. Murphy; treasurer, W. E. Wheeler. The decoration contract for the 1916 show was let to the J. L. Hall Co., and the association has arranged to add a new accessory division to the show, which will give a larger block of space to accessories. All space for the show is to be placed on public sale on the evening of December 4. It is expected there will be little space sold after the first drawing.

ST. LOUISANS GET REBATE

ST. LOUIS, Nov. 19—A rebate of 90 per cent to exhibitors at the last annual automobile show held by the St. Louis Manufacturers and Dealers Association has been declared. Joseph A. Schlecht, chairman of the show committee, said that the earnings of the show would warrant even a 92.8 per cent rebate, but it was considered advisable to divert 2.8 per cent of the earnings into the treasury of the association. This is the largest rebate ever paid in the history of the organization. The largest previous rebate was 60 per cent, paid to member exhibitors at the 1913 and 1914 shows. Exhibitors at the 1915 show who were

not members of the association will not share in the rebate. The local association has decided not to give the customary banquet this year. Instead it has pledged to contribute at least \$1,000 towards the \$200,000 fund now being raised in St. Louis in an effort to attract one or both of the next national political conventions.

IOWANS TALK ADVERTISING

DES MOINES, Nov. 22—Of a total membership of 35, 25 members of the Iowa Automobile Business Association attended the regular meeting which was held last week. A social committee of five members, including H. C. Carr, T. A. Horton, A. R. Reel, D. E. Holmes and Theodore Winterberg, was appointed to arrange for entertainment at future meetings. A second committee of three, including A. R. Lockwell, J. H. Gibson and C. S. Claiborne, was appointed to investigate traffic regulations in the city and suggest a plan for improvement. T. W. Le Quatte, advertising manager of the Successful Farming Publishing Co., talked to the members on advertising.

UTICA ADDS MEMBERS

UTICA, N. Y., Nov. 22—Four new members have been added by the Utica Automobile Trade Association, and at the last meeting the week beginning Feb. 28 was tentatively adopted for the 1916 show. The date will be confirmed if it is possible to complete arrangements for the show to be held in the State Armory.

PHILADELPHIA SHOW PLANS

PHILADELPHIA, Nov. 22—The show committee of the Philadelphia Automobile Trade Association has received a permit for rearranging the interior of Convention Hall, which includes the laying of a special flooring and the installation of a heating system. The committee plans to make the show a tri-state affair and is preparing to accommodate crowds of immense proportions.

COLUMBUS HAS HEADQUARTERS

COLUMBUS, O., Nov. 22—The Garage Owners Association, which was organized at a meeting held in Columbus last month, has opened headquarters in the Columbus Savings & Trust building, with Secretary A. J. Peoples in charge. Literature is being printed preliminary to a vigorous campaign for members.

Rubber Ascending Again

NEW YORK, Nov. 23—Crude rubber prices have again reached a high mark. Fine up-river Para yesterday was quoted at \$0.75 per lb. and Ceylon at \$0.83. Both these grades have been advancing the last few weeks, but at no time has there been such a big jump as since last Saturday, when Para rubber was selling about \$0.65 and Ceylon around \$0.69.

New York Service Men May Form Association

**Hope to Eliminate Abuses in the Service
Systems of Dealers — Dealers
Association Fathers the
Movement**

NEW YORK, Nov. 17—An initial meeting of service managers was held today under the auspices of the Automobile Dealers Association in its offices in the Hotel Woodward. While no definite steps toward organization were taken it is expected that at the next meeting, scheduled for Dec. 17, an organization will be effected.

There are two evils which arise from the fact that the service men are not better acquainted with each other. One is the floating mechanic, who works a week or so in one shop, is fired through incompetency and then moves on to some other shop, where he probably has no difficulty in obtaining a job by stating that he worked at the former shop. The manager of the latter shop knows that the former shop is a high-grade one and employs good men, and therefore assumes that the man in question is all right, only to find out a week or so later that he is wrong. This difficulty might be remedied easily if the managers of these shops knew each other personally, as it would simply mean that when a mechanic applied for a job the manager would call up the other shop and find out whether he was any good or not.

The other evil, which may also be corrected by a closer relationship of the managers, is that of the grafting owner who holds some other service department up as an example of what he should expect from the agents of his car.

When he wants something for nothing he goes to the service manager and says, "that so-and-so, who owns a Blank car, had the same thing done down at the Blank service station for nothing." If the managers were better acquainted a moment's telephone conversation would determine whether this man's claim was so or not.

In line with this get-together idea it was suggested that the various managers issue standing invitations to all brother managers to visit their service stations at any time. The purpose of this was to allow the managers to become familiar with the policies and details of the operation of other shops so that they might be better able to deal with the unreasonable demands of their customers and also that they might get ideas.

The question of giving emergency service to everyone that demanded it, whether the service was needed or not, was also considered. Two solutions were suggested for this problem. One was

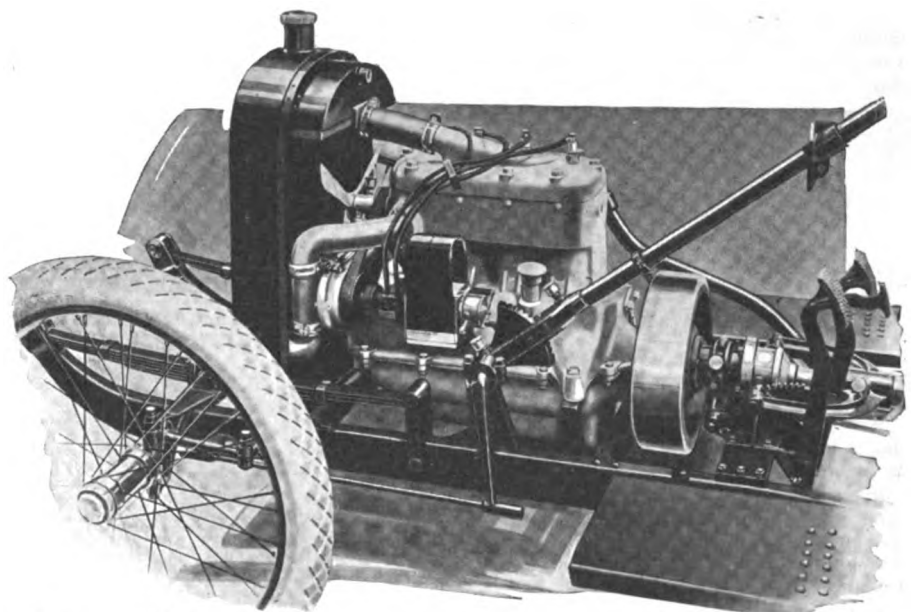
to turn the excess work over to independent shops which were known to do satisfactory work and which the manager could unhesitatingly recommend, and the other was to do only the jobs that really required immediate attention and let the others wait. The latter is preferable.

Those who attended were: Clarence Cady (Pierce-Arrow), Lester M. Krest (Reo), C. E. Mankind (Studebaker), D. M. Hasbrook (Mitchell), C. K. Thomas (Federal truck), W. H. Garland (Velie), S. S. Toback (King), W. T. Savoy (Auto-car), Harry W. Perry (N. A. C. C.), R. H. Johnston and J. Williams (White), Harry Stratton and William McIlvrid (Cole and Dodge), John Plummer and Chas. J. Birmingham (Locomobile), W. Poertner and H. Seidell (National and Jeffery), C. B. Jackson, W. A. Evans and Harry Norton (Packard).

WOODS MOBILETTE, \$380

The Woods Mobilette Co., Chicago, announces a 1916 model Mobilette to sell for \$380, the design being much the same as for the last model, but with a number of refinements. With a 104-in. wheelbase and 36-in. tread, the car has a four-cylinder 2½ x 4 motor with a detachable head.

Drive is taken through a leather cone clutch to a drive shaft with one universal and the gearset is integral with the floating type rear axle. Ignition is by Bosch magneto. Two speeds and reverse are given. A feature is the underslung suspension of the front portion of the car, this being shown in the illustration. The rear axle lies below the frame in the usual way, being attached to a pair of three-quarter springs. In the body, the seats are slightly staggered, the driver being a little forward of the passenger, and there is ample room in all directions for both driver and passenger.



The new \$380 Woods Mobilette is underslung in front. The motor head is detachable. The gearset is in the rear axle

Dealers Are Not Junk Men Says Boston Court

**Trade Association Is Successful in Com-
batting Obnoxious Law — Would
Have Hampered Used Car
Business**

BOSTON, Nov. 20—Boston dealers have won their fight against the law that was being enforced to class them among junk dealers and pawnbrokers. It started a few weeks ago when the police officials went about among them and ordered that each take out a license at \$5 to do business in used cars, and they were notified not to sell any cars they took in before 30 days; this the dealers refused.

So, acting under orders, one of the police officials arrested F. A. Hinchcliffe, manager of the New England branch of the Winton Motor Car Co., charging him with refusing to take out a license, and also with the selling of a car before the 30-day period expired.

The Boston Automobile Dealers Association decided to fight the case for Hinchcliffe, and their attorney, John B. Sullivan, Jr., appeared for him. The attorney showed that the intent of the law was to prevent people from disposing of small things that had been stolen, not motor cars. He also showed that by paying a license to the state to do business as motor dealers they could not be expected to pay another license to the city of Boston, as no other class of people have to pay two licenses to do business. After hearing the argument by the police attorney the judge stated that there was no violation of the law and he discharged Hinchcliffe.

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

De Witt Voorhis, assistant secretary and treasurer of the Hudson Motor Car Co. of New York, has been made manager of a new branch which the company will open at Main street and Center avenue, New Rochelle, N. Y., on Jan. 1. **H. C. Huber**, at present controller of the organization, will become assistant secretary and treasurer.

Frank S. Baird has become retail sales manager of the Saxon Motor Co., of New York. He was formerly with the Chevrolet Motor Co. in the sales department.

L. B. Berger, Lozier factory sales manager, has also been appointed manager of the New York branch.

Wallace C. Hood, who was general sales manager of the Detroit Motor Car Co., has resigned to enter another line of business. He was formerly sales manager of the old Briggs-Detroit Co.

George G. Reed, until recently New England distributor for the Briggs-Detroit, has become New England traveling representative for the Holler Motor Sales Co., covering Maine, New Hampshire and Vermont.

Percy Holsworth, formerly with the Yellow Taxicab Co., New York, has associated himself with the Fickling Enameling Corp., Long Island City.

V. L. Cramer, for the last three years president of the American Distributing Co., has been appointed district sales manager of the F. S. Carr Co., Boston, with headquarters at the Detroit branch, 969 Woodward avenue.

Nevin Baker Reisinger, who has been purchasing agent for the Pathfinder Co., Indianapolis, for over five years, has resigned and accepted a similar position with the Argo Motor Co., Jackson, Mich.

W. C. Kenney has joined the forces of the Hyatt Roller Bearing Co. as chief mechanical inspector.

A. B. Hanson, until recently manager of service department of the Chalmers Motor Co., Detroit, is now general manager of the Service Motor Truck Co.

J. L. Bell, who has been service manager of the Monarch Motor Car Co., has recently been promoted to sales manager of the company.

Joseph R. Garth has succeeded **H. J. Vogler** as Philadelphia district representative for the Maxwell Motor Co. Vogler has been appointed district representative in New York for the same company.

J. S. Hurd, formerly associated with the Gramm-Bernstein Co., Lima, O., has accepted a position as traveling representative for the Four Wheel Drive Auto Co., Clintonville, Wis.

F. K. Rosenwald has been made assistant in the sales department of the Detroit Motor Car Co., Detroit.

F. S. Rogers has been appointed New England traveling representative for the Anderson Electric Car Co., Detroit. He was formerly district manager for the Waverley Co. in New England.

C. C. Ferry has been appointed sales manager of the Delfon Tire & Rubber Co.,

Trenton. He will make his headquarters at the factory in Trenton.

COOPER'S GRAND PRIZE

PHOENIX, ARIZ., Nov. 20—Earl Cooper added another victory to the Stutz string today when he was awarded first honors in the Arizona Grand Prize. The race, scheduled for 150 miles, was called at 5:25 o'clock because of darkness and dust. At that time Cooper was leading. He had covered 109 miles in 1:52:30, an average of 63.8 m. p. h.

When the race was called **Jim Parsons**, also in a Stutz, was second, having completed 108 miles in 1:42, while **Ed. Waltermann**, driving an Overland, was third. His time for 103 miles was 1:42:31. Of a field of thirteen starters the following were still in the race when flagged:

Sebring, Haibe, 102 miles; **Apperson**, Price, 100 miles; **Special Durant**, Durant, 97 miles; **Stutz**, Wood, 98 miles; **Dusen-berg**, Bolden, 93 miles; **National**, Reeves, 86 miles.

Oldfield's Fiat went out with a broken connecting rod before one mile.

Springfield Body Is Reincorporated

SPRINGFIELD, MASS., Nov. 20—The Springfield Body Co. has been incorporated for \$1,000,000 in this city to take over the business of the Springfield Metal Body Co. This reincorporation has been made necessary on account of increased business, which has shown a gain of 3,000 per cent in the last 120 days. **Hinsdale Smith**, of Holyoke, and **A. P. Smith**, of Granby, the owners of the old company, are included in the list of incorporators, with **W. L. Fry**, of New York; **E. W. McGookin**, of Detroit, and **F. W. Fuller**, of Springfield.

W. L. Fry has been elected president of the company; **Hinsdale Smith**, vice-president and chief engineer; **E. W. McGookin**, vice-president and director of sales, and **A. P. Smith**, treasurer. Mr. Fry became interested in the company about a year ago and was instrumental in the organization of the new company. Plans are now under way for a plant in Detroit which will be used for large orders, while the Springfield plant will be used for small orders.

Dealers Report Results in Studebaker Contest

**Show Average Consumption of 87 Gal. of
Gasoline and 10 Qt. of Oil for 1,025
Miles—Fifty Reports Not
Yet In**

DETROIT, Nov. 20—The Studebaker Corp. officials are expressing much satisfaction with the reports they are receiving daily from their distributors or dealers who took part in the recent 4-day reliability and economy run during which a minimum of 1,000 miles had to be run by the contestants. To date, 62 dealers' reports are on file and word has as yet to be received from 50 more.

These reports on hand give however, a good idea of what this test was, and it promises to be used for a long time as an excellent selling argument by the dealers. The fact that cars were started in practically every state, that they ran on the same days, that road conditions from the macadam road to the gumbo and snow-covered roads were encountered, together with beautiful clear weather and rain and snow storms, will provide a most unique record of data.

Every car used in the run was a standard stock model, either a six or a four. Each car had full equipment. Some had additional equipment, while one or two on one or two days started without extras and even without tools, being confident that the car would make the day's run without needing the call for tools or extras. The average mileage was 1,025, the average gasoline consumption 87 gal., and the average oil consumption 10 qt.

Carpenter to Represent Pierce-Arrow

BROOKLYN, N. Y., Nov. 22—**H. L. Carpenter**, of the Carpenter Motor Car Co., will on Dec. 1 become associated with the Pierce interests and the Harolds Motor Car Co., representing both the pleasure and commercial types of Pierce-Arrow cars on Long Island.

Dealer Factory Visitors of the Week

WESTCOTT MOTOR CAR CO.

Lew H. Allen New York
A. J. LaDuke Minneapolis
P. M. Price, Baker-Price Co. Philadelphia
Chas. Swihart Eaton, O.
Fred Folberth Cleveland
Chas. S. Burke Springfield, O.
Raymond W. Miller Tiffin, O.
Henry Schake Greenville, O.
L. W. Fisher Columbus, O.
A. W. Tindall Hartford City, Ind.
P. W. Hartman Tampa, Fla.

PACKARD MOTOR CAR CO.

R. E. Campbell, Packard Cleveland M. Co.,
Cleveland
J. W. Smith Ft. Dodge, Ia.
F. S. Hipkins, J. W. Smith Ft. Dodge, Ia.
S. A. Luttrell, Luttrell Co. Washington, D. C.

Wm. Love Toledo
Cuyler Lee San Francisco, Cal.
L. J. Eastman, Packard M. C. Co. Phila.
W. F. Roth, Packard M. C. Co. Phila.
D. P. Wilkinson, Blair M. C. Co. Altoona, Pa.
I. L. Berk, Packard Motor Co. Pittsburgh
F. L. MacFarland, MacFarland A. Co. Denver
J. B. Sheagren, Sheagren-Hunt Co. Burlington, Ia.
W. B. Hunt, Sheagren-Hunt Co. Burlington, Ia.
S. L. Prime, Packard M. Car Co. Boston
R. B. Parker, Packard M. C. Co. Boston
F. G. Pennal, Comet Motor Co., Ltd. Montreal, Que.
H. W. Skinner, H. W. Skinner M. C. Co. Utica, N. Y.
R. J. W. Hamill, Pack. M. C. Co. Baltimore
H. Conrad, Lackawanna A. Co. Scranton, Pa.

15,000,000 Pneumatic Tires Needed For 1916

Forty Tire Factories Rushed With Business — Expansion of Plants in Many Cities—Some Making 10,000 a Day

NEW YORK, Nov. 22—Over 15,000,000 pneumatic tires will be needed to care for the motor car business in America in 1916. There are today in excess of 2,200,000 motor cars registered in the country. Add to this perhaps 700,000 cars that will be built by July 1, 1916. When you have added these cars to those already registered the total is 2,900,000 cars. Give five tires to each car and the total is \$14,500,000 tires needed.

To produce this number of tires there are today 40 tire factories that are manufacturing pneumatic tires. Some of these produce more than 10,000 tires per day, others build 7,500, others 1,000, others 300, some 100, some 60, and a few but 40 tires per day. While Akron is looked upon as the Tire Mecca of America, a title it properly deserves, other tire centers are springing up, the State of New Jersey, occupying a mid position between such population centers as New York and Philadelphia, being a particularly active tire center.

Not for years, if ever in its history, has there been so much activity in the tire field. Expansion is in the air in the vicinity of every tire factory. New buildings have been going up all season and today the rush of construction is greater than ever. In Akron the big companies are adding enormously to their plants, some of them increasing their output 50 per cent; in other parts of the country some factories are doubling their capacity. The enormous output of cars during the past year has necessitated these additions as well as the prospects for increased car outputs for 1916.

This numerical growth is alone responsible for much tire factory development, but in addition comes the increase in export business. Nearly all tire factories have been getting a share of war business, either for pneumatic or solid tires. During the year the export trade to South America has increased and the business to Australia, South Africa and Canada has taken a part of the output.

To care for these increased tire demands factory additions have been the program of the past year. The Akron makers are among the leaders in this building wave, but factories in other sections of the country are equally active. Firestone is at present working on nine new wings or factory additions which when completed will add 11 acres of floor space, giving a total of 32 acres of

floor space. These wings are nearly all of the same size, measuring 120 x 80 ft., five stories high. In addition, the company is erecting a large club house for its employes. The company hopes to double its output of solid tires and increase its output of pneumatics by 80 per cent.

Goodrich and Goodyear, the two largest producers in Akron, are both adding to floor area, Goodrich erecting several large buildings, part of which will be used in its cord tire work and part in its line of rubber goods other than tires.

Kelly-Springfield has increased its floor space 25 per cent during the past year and its manufacturing facilities 200 per cent during the past 18 months.

Outside of Akron the program of additions continues. Fisk is making additions that when completed will give is about 20 acres of floor space for making pneumatic tires. It has just completed a five-story reinforced concrete warehouse and the foundations are under way for a new factory building. The Pennsylvania company last year added a new building 200 by 140, six stories high. Ajax has just added a new curing room 100 x 50, one story, and is erecting a new factory building 300 x 250 ft., three stories high.

The Falls Rubber Co. has a new plant: 800 x 80 ft., with three stories and basement. The New Jersey Car Spring & Rubber Co. has doubled its floor area devoted to tire manufacture during the year. Swinehart has added facilities in the last year to double its tire output. If it were possible to poll a complete vote on additions to tire factories much progress would be shown.

Several new concerns have entered the field during the year, one being the Midgley Tire & Rubber Co., which started last spring in Lancaster, O. The De Lion began manufacture in Trenton, N. J., early in the year.

Jobber Opens Up in Waco

STAMFORD, TEX., Nov. 22—The Stamford Motor Co., jobber, will on Jan. 1 open in Waco, Tex., an exclusive wholesale supply house. In the past the company has handled a car agency, but in the future will devote itself exclusively to the wholesale distribution of accessories and supplies. The company is preparing to negotiate for the state agencies for a number of different accessories.

Dealer Adds Custom Department

NEW YORK, Nov. 22—The Oldsmobile Co. of New York has added a custom body department and is prepared to furnish bodies built according to the individual ideas and requirements of purchaser. The various types of bodies include everything from an open speedster to the most elaborate of closed cars.

Seller May Refuse To Sell To a Price-cutter

Court of Appeals Upholds A. & P. Tea Decision—Says Choosing Customer Is Part of a Man's Civil Rights

NEW YORK, Nov. 22—The U. S. Circuit of Appeals has upheld the decision of Judge Hough in the case of the Great Atlantic & Pacific Tea Co. against the Cream of Wheat Co. Judge Hough's opinion, which was handed down last July, held that the manufacturer has a right to refuse to deal with a price-cutter, and thus, by implication, granted many of the principles which advocates of price maintenance have been attempting to have the courts recognize.

"We had supposed that it was elementary law," says the court of appeals, "that a trader could buy from whom he pleased and sell to whom he pleased, and that this selection of seller and buyer was wholly his own concern. It is a part of a man's civil rights that he be at liberty to refuse business relations with any person whomsoever whether the refusal rests upon reason or is the result of whim, caprice, prejudice or malice." In upholding the previous decision, the court of appeals laid stress on the fact that the Cream of Wheat company "is not a monopoly or even a quasi-monopoly."

Makes Economy Run With Sedan

SYRACUSE, Nov. 22—A test has just been completed by the Franklin Automobile Co. to demonstrate the economy in the use of oil of the air-cooled motor. One thousand and thirty-eight miles were covered on 1 gal. of oil in a run from New York to Chicago. The trip was made in a Franklin sedan which started from New York on Wednesday, Nov. 17. H. A. Smith and Frederick Jehle, of the Automobile Club of America, acted as official observers. Drivers were changed every 12 hours. The route taken was through Albany, Buffalo, Cleveland and Kendallville, O. The party was scheduled to arrive in Chicago Friday night, but encountered severe storms and became lost on the last lap of the trip, reaching Chicago early Saturday morning.

Chevrolet to Assemble in Dallas

DALLAS, TEX., Nov. 22—The Chevrolet Motor Co. will build in Dallas an assembling plant similar to the Ford assembling plant. It is said \$250,000 will be spent on the Dallas plant and that several hundred men will be employed. A site in East Dallas has been secured by the company.

Gasoline Investigation Is Started in Georgia

Federal Trade Commission Starts Inquiry Which Will Be Nation-wide, It Is Said—Restraint of Trade Charged

SAVANNAH, GA., Nov. 18—William J. Harris, member of the federal trade commission; T. A. Carroll, an oil and gas expert in the employ of the government, and a legal examiner who works with the trade commission in its inquiries, are in Georgia in pursuit of an inquiry, nation wide in its scope, regarding the general situation in gasoline and kerosene trade circles, particularly concerning complaints of discrimination in restraint of trade.

"The government is looking into the general situation regarding the sale and price of gasoline and oil," said Harris. "My department is vested with that authority. We have concluded to extend the inquiry to all parts of the country, but we have decided to start in Georgia because the first complaints came from this state.

"There are many things to be considered in this connection. Price alone is not what counts. We must investigate the source of supply and the methods employed in getting the product to the consumer. For instance, in some places we find that oil and gasoline will be piped many miles to a market. Most of the gasoline used in Atlanta and Macon, for instance, passes through Savannah, where it is brought in vessels and then shipped to these points."

Standard Curb Pumps For \$1

NEW YORK, Nov. 22—To those dealers who will agree to purchase gasoline from the Standard Oil Co. of Ohio exclusively, that company is supplying self-measuring gasoline curb pumps for the sum of \$1. To cover the operation the Standard has drawn up an agreement which is signed by the retailer and by itself. This does not give the compensation the dealer gets, however, for handling the gasoline. It gives the Standard full charge over the pumps and permits the company to come in at any time and take the pump from the dealer.

Milwaukee Gas Prices Tighten

MILWAUKEE, Nov. 22—A further tightening of gasoline prices in the Milwaukee district is indicated by the announcement issued on Nov. 19 by the independent jobbers to the effect that the quotation on tank wagon delivery in lots of 100 gal. or more has been withdrawn and in the future the quotation will be on the existing tank wagon delivery

basis, any quantity. The 100-gal. quotation has been uniformly 1 cent under the ordinary tank wagon price, which is about 1 cent lower than the filling station quotation. The announcement, in effect, means a 1 cent increase in tank wagon prices for large lots. The prices are the same as the new quotations issued Nov. 15, with the exception that the 100-gal. price is withdrawn. Nov. 15 prices were 1 cent higher than those quoted on Oct. 25. The previous change was that announced Oct. 16, this list having been raised 1 cent on Oct. 25.

Gas Up 2 Cents in Denver

DENVER, Nov. 19—Gasoline made another 2-cent jump in Denver this week, now retailing at 19 cents from the filling stations and 18 cents direct from the oil companies to the consumer in lots of 25 gal. or more. Most of the garages are meeting the filling station price, but a few are charging 20 cents.

Gas Price Record in Dallas

DALLAS, Nov. 15—Gasoline took a jump in Dallas from 17 to 19 cents per gal., the highest price known here in 10 years. No reason can be learned for the increase, except that the wholesale price has increased, which has caused the retailers to raise the price.

Denver Bans Curb Pumps in Residence Section

DENVER, Nov. 22—The bill introduced several weeks ago for an ordinance to permit the installing of curb pumps by garages in districts of the city outside the congested business section was killed last week by the city council. The measure was backed by the Automobile Trades Association of Colorado and proposed granting curb pump licenses in the residence districts at \$25 a year.

Pullman Has Four Bodies

YORK, PA., Nov. 22—The Pullman Motor Car Co. will produce but one chassis for 1916 with 114 in. wheelbase, cantilever rear springs and equipped with 31 x 4 in. tires, non-skid all around on demountable rims. The motor is 3¾ x 4¼ block cast, and a unit with a multiple disk clutch and three-speed gearset. Four bodies are mounted on this chassis, these being 5-passenger touring, 2- and 3-passenger roadster, and a coupe which is equipped with the C-H magnetic gear shift, the price of this model being \$990; the others list at \$740. Among the changes that have been made are the adoption of independent ignition by Dixie magneto, and cantilever springs.

Keep Track of Your Earnings

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Philadelphia Watches For Gasoline in the Sewers

Ordinance Framed Which Provides for Outside Traps Which Must Be "Easily Inspected" — Independent Drainage

PHILADELPHIA, Nov. 22—An ordinance has been framed by the Departments of Public Works, Health and Charities, and Public Safety, and submitted to councils at the recommendation of Mayor Blankenburg, for the purpose of regulating the discharge of gasoline from garages into the city sewers.

The proposed ordinance provides that in all garages, surface inlets, repair pits, depressions or other places specified by the the fire marshal, shall be connected to independent drainage systems, the outlet of which is to be connected with the main drain of the sewer. All intercepting traps are to be located on the outside of the garage where they can be easily inspected by the inspectors from the Department of Highways.

Curbstoners Don't Need License

LANSING, MICH., Nov. 18—According to an opinion given by Attorney-General Grant Follows to Secretary of State Coleman C. Vaughan, automobile dealers or agents who sell cars but have no garage or do not operate a garage and who are generally spoken about as curbstone dealers, do not have to obtain a dealers' license. They must, however, register each machine they control and operate or get a general license number for them as provided by the law.

Rules on Marking Envelopes

WASHINGTON, D. C., Nov. 22—The Post Office Department has ruled that letters bearing certain markings on the outside may not be mailed. The markings are such words as "Postal Delivery Service," "National Mail Dispatch Service," "Night Letter," "Contains Important Message," and similar phrases. The ruling does not apply to ordinary advertising markings or illustrations on envelopes but only to such inscriptions as would seem to imply a special mail service.

Maxwell to Try Non-stop

LOS ANGELES, Nov. 16—Earl Cooper, driving a 1916 stock Maxwell, will try for a non-motor-stop, long distance mileage run in and around this city this month. The stock status of the car is being established, a sanction has been obtained from the American Automobile Association, and official inspectors and technical committee will be employed.

NEW \$6,000,000 COMPANY TO BUILD 27,600 SAXONS

DETROIT, Nov. 20—The Saxon Motor Co. has been succeeded by the Saxon Motor Car Corp., which has just been incorporated under the laws of New York, with a capital of \$6,000,000. The Saxon Motor Co., which started in business in November, 1913, was capitalized at \$350,000, of which \$250,000 was common stock and \$100,000 was 7 per cent preferred stock. The entire new capital stock is common, and half of this, or \$3,000,000, will be offered to the public at \$75 per share, a first payment of \$5 per share being required with all subscriptions. The subscription books opened Nov. 22 and close Nov. 24. This \$3,000,000 worth of stock was bought by a banking syndicate consisting of Merrill, Lynch & Co., New York and Detroit.

"Our business has been expanding so rapidly," said President Harry W. Ford, "that we had to make it possible to greatly increase our production and prepare for the future big business which we anticipate. We have built and shipped 17,000 cars in round figures thus far this year. Our production schedule from the end of August, 1915, to July, 1916, calls for 27,600 cars. With the increased capital we contemplate greatly increasing our production facilities and the output."

The officers and directors of the Saxon Motor Car Corp. are: President and general manager, Harry W. Ford; vice-president, Percy Owen; secretary-treasurer, Lincoln Scafe. Lee Conselman and George W. Dunham, together with the officers, make up the board of directors.

REELECT MILLER OFFICERS

AKRON, Nov. 22—At the annual stockholders' meeting of the Miller Rubber Co., all the officers and directors were reelected. This includes: President, Jacob Pfeiffer; vice-president, C. T. Grant; treasurer and assistant secretary, F. B. Theiss; secretary and assistant treasurer, W. F. Pfeiffer. They, together with J. M. Doran, comprise the board of directors. The president's report showed an increase in surplus to \$813,000, and common dividends were increased from 10 to 12 per cent per annum. Sales for the year were 30 per cent greater than the year previous. The company also increased its floor space during the year by $6\frac{1}{2}$ acres.

No Change in G. V. Management

NEW YORK, Nov. 19—P. D. Waggoner, president of the General Vehicle Co., Inc., Long Island City, N. Y., which, with the Peerless Motor Car Co., Cleveland, O., recently became a subsidiary of the Peerless Truck and Motor Corp., states that the new interests will not in any way change the company's operating management or affect its relations with customers. There will also be no change in the company's manufacture of electrical apparatus and it will continue to devote its energies to the development of the electric vehicle business. The manufacture and marketing of the Mercedes truck will also be continued. The 5-6-ton size is now in production and arrangements are being made for the other sizes to go into production shortly. The company is also planning to actively engage in the manufacture and sale of the Mercedes aeroplane motor.

Eight-Cylinder Peerless at \$1,890

CLEVELAND, Nov. 18—The Peerless Motor Car Co. will manufacture the eight-cylinder Peerless car for \$1,890,

Factory News of the Week

deliveries to begin in December, and will also manufacture a regular line of Peerless trucks, to which a new 2-tonner will soon be added.

NORTON HEADS COMPANY TO BUILD CARS

RACINE, Nov. 22—The organization of the Corliss Steel Co. with a capital stock of \$10,000 is believed to be the preliminary step in the establishment of one of the largest motor car, tractor and engine businesses in the Middle West. The promoters of the new company are F. Lee Norton, for many years vice-president and general manager of the J. I. Case T. M. Co., Racine; Capt. William Mitchell Lewis, former president of the Mitchell-Lewis Motor Co., Racine, and Herbert F. Johnson, also of Racine.

The Corliss Steel Co. is organized for the purpose of manufacturing motor cars, engines, tractors, farm machinery, machine tools, and to make and deal in forged, stamped and pressed steel and metal products. While definite plans are withheld for the present, it is reported on good authority that the new concern will begin business in the big engineering works of the defunct Wisconsin Engine Co. at Corliss, Racine county. The works have been idle for about two years and it is known that several days ago orders were received to clean up the plant, overhaul the equipment and get the works in shape for operations.

The L. P. C. Motor Co., Racine, of which Capt. Lewis was president and general manager, made a voluntary assignment several weeks ago in favor of F. Lee Norton, representing creditors. The L. P. C. works are closed and it is believed will be moved to Corliss to become part of the Corliss Steel Co.

Tractor to Be Built by Ford & Son

DETROIT, Nov. 20—The Ford tractor will be made by the firm of Henry Ford & Son, Dearborn, Mich., according to Henry Ford. There will be no stockholders and the profits of the company, at least a large percentage, will be divided among the workers of the plant and among the purchasers of the tractors, it being intended to sell them under a profit-sharing system. The big new main plant, which is to supersede the present old factory buildings, is to be a four-story building, 800 x 160 ft. It is stated Ford will invest up to \$1,000,000 on the plant.

Cord Tires From St. Paul

ST. PAUL, Nov. 22—The Twin City Cord Tire Co. has opened offices at 1002 Pioneer building. The company is considering taking over the former Northern Pacific shops at Gloster suburb for a factory.

Fickling Enameling Expands

NEW YORK, Nov. 22—The Fickling Enameling Corp., Long Island City, is enlarging its plant by the addition of 25,000 sq. ft. to accommodate the assembling plant, wood-working, metal-stamping and upholstery departments.

CANADIAN WILLYS-OVERLAND COMPANY IN TORONTO

TOLEDO, Nov. 17—The Willys-Overland, Ltd., has been formed in Canada with a capital of \$6,000,000 and head offices in Toronto. J. N. Willys, head of the Willys-Overland Co., will be president of the new company. T. A. Russell, at present vice-president of the Russell Motor Car Co., of Canada, will be vice-president.

Five of the directors of the Willys-Overland Co. of Toledo will be directors of the new company; these are J. N. Willys, H. T. Dunn, Walter Stewart, Harry Shepler, C. A. Earl, T. A. Russell and Lloyd Harris, of Toronto, and two of the other Canadian stockholders will also be on the board.

This new company will take over the complete automobile business of the Russell Motor Car Co. and all of the business in Canada of the Willys-Overland Co.

Although the Canadian company will be independent of the parent company and will be conducted entirely independently as a Canadian corporation, it will have the advantage of the advice and engineering skill of the Willys-Overland Co. organization. The plan is to undertake in Canada the actual manufacture of both Overland and Willys-Knight automobiles. For this purpose the plant of the Russell Motor Car Co. of Toronto has already been acquired and this quickly will be enlarged to permit quantity production.

Parry Adds Two Trailers

INDIANAPOLIS, Nov. 24 — The Parry Mfg. Co., which has devoted its production to horse-drawn vehicles, shortly will add a number of motor car products. Among other things the company will add two trailers designed particularly for use with Ford cars, a two-wheeler and a four-wheeler.

Hupp Capital Now \$6,500,000

DETROIT, Nov. 19—The Hupp Motor Car Co. has increased its capital stock from \$1,500,000 to \$6,500,000. Of the entire capital \$5,000,000 is common stock and \$1,500,000 preferred. Previous to the increased capitalization the entire capital stock of the company was common stock. It is stated, but not confirmed by officials of the Hupp company, that present common stock shareholders will receive a common stock dividend, but no cash dividend. There is also to be a distribution of common stock as bonus to go with preferred stock, but in what proportion this will be has not yet been stated.

Change in Tire Company Name

TOLEDO, O., Nov. 22—Steps have been taken to change the name of the Toledo-Ford Tire Co. to the Toledo-Findlay Tire Co. The question is to be considered at a meeting to be held soon. The Ford Motor Co. contends that the word "Ford" is an infringement of its rights.

Ahlberg Branch in Minneapolis

MINNEAPOLIS, Nov. 22—The Ahlberg Bearing Co., Chicago, has opened a branch in Minneapolis at 926 Marquette avenue. L. J. Bohan is manager. The company now has branches in New York, Boston, Detroit, Cleveland, St. Louis and Los Angeles, in addition to that in Minneapolis.

MOTOR WORLD GUIDE

SPECIFICATIONS OF LEADING AMERICAN CARS BROUGHT UP TO DATE

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
ABBOTT-DETROIT												
K	4-4½x5½	32.4	Eismn	Zenith	A-Lite	Disk	3	116	34x4	1,785	....	....
L	4-4½x5½	32.4	Eismn	Zenith	A-Lite	Disk	3	121	36x4½	2,085	....	....
F	6-3½x5½	33.75	Eismn	Zenith	A-Lite	Disk	4	130	35x4½	2,190	2,190	2,290
H	8-3½x5	33.8	Remy	Zenith	A-Lite	Disk	3	121	35x4½	....	....	1,950
ALLEN												
37	4-3½x5	22.5	Walth	Stmbrg	Walth	Cone	3	112	32x3½	795	795	....
APPERSON												
6-80	6-4½x5	43.8	Remy	Rafld	Walth	Band	3	135	37x4½	....	....	2,350
6-16	6-3½x5½	29.4	Remy	Rafld	Walth	Band	3	122	34x4	1,485	1,550	....
8	8-3½x5	31.2	Remy	Rafld	Walth	Band	3	128	34x4	1,850	....	1,850
ARBENZ												
25	4-3½x5	16.9	....	....	....	Cone	3	108	30x3½	....	875	....
ARGO												
1916	4-2½x4½	12.1	A. Kent	Argo	Disco	Cone	2	96	28x3	385	435	....
AUBURN												
4-38	4-3½x5	24.0	....	Rafld	....	Cone	3	114	34x4	985	985	....
6-40-A	6-3½x5	29.45	....	Rafld	....	Cone	3	126	35x4½	1,375	....	1,375
6-38	6-3 x5	23.5	....	Rafld	....	Cone	3	120	34x4	1,050	1,050	....
AUSTIN												
66	6-4½x6	48.6	Walth	Master	Walth	Disk	6	141	31x4½	3,600	3,600	3,600
BAUER												
B	4-4½x5	36.1	Mea	Shblr	Emmn	Disk	3	110	34x3½	875	1,000	....
BELL												
A-16	4-3½x5	19.6	A. Kent	Carter	Disco	Cone	3	112	31x4	775	775	....
BRISCOE												
4	4-3 7-16x5½	18.9	Remy	Mayer	Apico	Cone	3	114	32x3½	750	750	....
8	8-3 x3½	28.8	Remy	Mayer	Apico	Cone	3	114	32x3½	1,850	950	....
BUICK												
...	6-3½x5	33.7	Delco	Marvel	Delco	Cone	3	130	36x4½	1,450	....	1,485
...	6-3½x4½	25.3	Delco	Marvel	Delco	Cone	3	115	32x4	950	985	....
CADILLAC												
53	8-3½x5½	31.2	Delco	Own	Delco	Disk	3	122	36x4½	2,080	2,080	2,080
CAMERON												
...	6-3 x5	21.6	A. Kent	Zephyr	Apico	Cone	3	122	32x4	1,000	1,000	....
CASE												
35	4-4½x5½	29.0	Bosch	Rafld	Walth	Disk	3	120	35x4½	1,600	....	....
40	4-4½x5½	32.4	Bosch	Rafld	Walth	Disk	3	124	37x4½	1,800	2,000	....
25	4-3½x4½	22.5	Walth	Stmbrg	Walth	Disk	3	115½	34x4	1,350	....	....
CHADWICK												
19	6-5 x6	60.0	Bosch	Own	Walth	Band	4	119	37x5	5,500	5,500	5,500
CHALMERS												
6-48	6-3½x5½	29.4	A. Kent	Rafld	Entz	Disk	3	126	34x4½	....	....	1,550
M-6	6-4 x5½	33.4	Bosch	Rafld	Entz	Disk	4	132	36x4½	2,175	2,175	....
6-40	6-3½x5	23.4	A. Kent	Rafld	G & D	Plate	3	124	34x4	1,350	....	1,350
6-30	6-3½x4½	25.4	Remy	Stmbrg	Walth	Disk	3	115	32x4	1,050	....	....
CHANDLER												
15	6-3½x5	27.3	Bosch	Rafld	G & D	Disk	3	120	34x4	1,395	....	....
CHEVROLET												
H	4-3 11-16x4	21.8	....	A-Lite	Zenith	Cone	3	106	32x3½	730	750	....
4-90	4-3 11-16x4	21.8	Stimms	A-Lite	Zenith	Cone	3	102	30x3½	490	....	....
COLE												
4-40	4-4½x5½	29.0	Delco	Stmbrg	Delco	Cone	3	120	35x4½	1,485	1,485	1,485
6-60	6-4½x5½	48.6	Delco	Stmbrg	Delco	Cone	3	136	37x5	2,385	2,465	2,465
8	8-3½x4½	29.2	Delco	Stmbrg	Delco	Cone	3	126	34x4½	1,785	....	1,785
CRAWFORD												
6-35	6-3½x5	29.4	Walth	Stmbrg	Walth	Disk	3	120	34x4	1,850	1,850	....
CROW												
E-62	6-3½x5½	33.7	G & D	Shblr	Emmn	Disk	3	130	36x4	1,895	1,895	....
C. E. Jr.	4-3½x5	19.6	Disco	Zenith	Disco	Disk	3	104	32x3½	725	....	....
CUNNINGHAM												
8	4-4½x5½	36.1	Bosch	Stmbrg	Undec	Disk	3	129	37x5	....	....	3,750
DAVIS												
...	4-3½x5	22.5	Delco	Stmbrg	Delco	Cone	3	112	34x4	1,165	1,165	....
...	6-3½x5	29.4	Delco	Stmbrg	Delco	Cone	3	124	34x4½	....	....	1,495
...	6-3½x4½	25.3	Delco	Stmbrg	Delco	Cone	3	120	34x4	1,250	....	....
DANIELS												
8	8-3½x5	33.8	Walth	Zenith	Walth	Disk	3	127	34x4½	2,350	2,350	2,350
DETROITER												
C	4-3½x5	19.6	Remy	Stmbrg	Remy	Disk	3	112	32x3½	985	....	....
8	8-2½x4½	24.2	....	Zenith	....	....	....	....	....	1,295	....	....
DODGE												
...	4-3½x4½	24.2	Eismn	Stwrt	N E	Cone	3	110	32x3½	785	785	....
DOBBIS												
I-A-4	6-4½x5	45.9	Walth	Stmbrg	Walth	Disk	3	121	36x4½	2,200	....	2,250
...	6-4 x5	38.4	Bosch	Stmbrg	Walth	Disk	3	128	36x4½	2,475	....	2,475
DOBT												
5-A	4-3½x5	16.9	Conn	Carter	Walth	Cone	3	105	30x3½	....	650	....
EMPIRE												
...	4-3½x5	24	Conn	Shblr	....	Cone	3	112	33x4	....	895	....
...	6-3 x5	21.6	Conn	Shblr	A-Lite	Cone	3	120	34x4	....	1,095	....
ENGER												
12	12-2½x3½	33	A. Kent	Zenith	....	....	3	115	32x4	....	1,095	....
FIAT												
55	4-5½x6½	42.2	Bosch	Own	Own	Disk	4	128	36x4½	4,850	4,850	4,850
6-50	6-4½x6	44.0	Bosch	Own	Own	Disk	4	135	37x5	5,350	5,350	5,350
FORD												
T	4-3½x4	22.5	Ford	Holley Kingston	....	Disk	2	100	30x3½	390	440	....
FRANKLIN												
...	6-3½x4	31.5	Eismn	Own	Dyneto	Disk	3	120	34x4½	1,950	1,950	....
F. R. P.												
45-B	4-4 3-5x6½	33.8	Bosch	Stwrt	Bosch	Cone	4	110	36x4	All bodies to order	....	....
GLIDE												
6	6-3 x5	21.6	Walth	Rafld	Walth	Disk	3	119	34x4	....	1,095	....
GRANT												
TT	6-3 x4½	21.6	A. Kent	....	A-C	Cone	3	112	32x3½	....	795	....
GREAT WESTERN												
1916	6-3 x5	21.6	Remy	....	W. Lard	Disk	3	...	33x4	....	1,185	....
H. A. L.												
H. A. L.	12-3 x4½	43.2	....	....	....	Disk	3	130	34x4	1,750	1,750	....
HALLADAY												
6-40	6-	....	Walth	Stmbrg	Walth	Disk	3	...	34x4	....	1,385	....
HARVARD												
4	4-3 x4½	14.4	Bosch	Zenith	....	Disk	3	100	28x3	750	....	....
HAYNES												
34	6-3½x5	29.4	Own	Rafld	L-N	Disk	3	121	34x4	1,485	1,385	....
35	6-3½x5	29.4	Own	Rafld	L-N	Disk	3	127	35x4½	....	1,495	....
HERFF-BROOKS												
4-35	4-4 x4½	25.6	Spfld	Stmbrg	Apico	Cone	3	110	34x4	885	885	....
6-50	6-4 x4½	38.4	Spfld	Stmbrg	Apico	Cone	3	120	34x4	1,095	1,095	....
HOLLIER												
...	8-3 x4½	28.8	A. Kent	Stmbrg	Apple	Cone	3	112	33x3½	....	985	....
HUDSON												
6-40	6-3½x5	29.4	Delco	Zenith	Delco	Disk	3	123½	34x4	1,550	....	1,550
6-54	6-4½x5½	40.8	Delco	Zenith	Delco	Disk	4	135	36x4½	....	....	2,350
HUPMORILE												
...	4-3½x5½	22.5	A. Kent	Zenith	Bljur	Disk	3	119	34x4	1,095	1,095	1,225
...	...	...	...	...	...	...	...	134	35x4½	....	....	....
IMPERIAL												
...	4-3½x5	22.5	Walth	Stmbrg	Walth	Disk	3	115	33x4	....	895	....
56	6-3½x5½	33.7	Spfld	Stmbrg	N E	Disk	3	130	36x4½	....	....	2,200
66	6-3 x5	21.6	....	....	....	Disk	3	...	33x4	....	1,195	....
INTER-STATE												
T	4-3½x5	19.6	Remy	Shblr	Remy	Cone	3	110	33x4	....	1,000	....
JACKSON												
...	4-3½x5	19.6	....	....	A-Lite	Cone	3	112	32x4	....	985	....
...	8-2½x4½	26.4	....	....	A-Lite	Cone	3	112	32x4	....	1,195	....
...	8-3½x4½	39.2	....	....	A-Lite	Cone	3	124	34x4½	....	....	1,685
JEFFERY												
Four	4-3½x5½	22.5	Bosch	Stmbrg	Bljur	Plate	3	116	34x4	11,000	1,000	1,085
Child	6-3 x5	21.6	Bosch	Stmbrg	Bljur	Disk	4	122	34x4	....	1,350	....
KING												
...	4-3 15-16x5	24.7	A. Kent	Stmbrg	W. Lard	Disk	3	113	33x4	1,075	1,075	....
...	8-2½x5	26.4	A. Kent	Zenith	W. Lard	Disk	3	113	33x4	....	1,150	....
KISSEL												
4-32	4-3½x5½	24	Walth	Stmbrg	Own	Cone	3	115	32x4	....	1,050	....
4-36	4-4½x5½	29.0	Walth	Stmbrg	Own	Cone	3	121	34x4	....	1,250	....
6-42	6-3½x5½	31.5	Walth	Stmbrg	Kissel	Cone	3	126	34x4	1,485	1,485	1,485

6-passenger; † 4-passenger; ‡ 3-passenger.

6-passenger; † 4-passenger; ‡ 3-passenger.

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
KLINE												
6-42	6-3½x5½	29.4	Wths	Rafid	Wths	Disk	3 123	34x4	1,750	1,750	....	....
6-42-A	6-3½x5½	29.4	Wths	Rafid	Wths	Disk	3 127	35x4½	....	....	1,850	....
LAMBERT												
48-C	4-3½x4	22.5	Briggs	Shblr	Briggs	Frm Trs	112	32x3½	....	1,300	....	....
68-C	4-4½x5½	27.2	Briggs	Shblr	Briggs	Frm Trs	117	34x3½	1,565	1,565	....	....
LEWIS												
VI	6-3½x6	25.4	Remy	Stmbg	Remy	Disk	3 135	34x4	1,300	....	1,300	....
LEXINGTON												
4-Kp	4-3½x5½	24.0	Wths	Shblr	Wths	Disk	3 115	34x4	....	1,375	....	....
6-La	6-3½x5	29.4	Wths	Shblr	Wths	Disk	3 128	34x4	1,875	1,875	....	....
LOCOMOBILE												
M-6	6-4½x5½	48.6	Bosch	Own	Wths	Disk	4 143	37x5	....	5,100	5,100	....
R-6	6-4½x5	43.3	Bosch	Own	Wths	Disk	4 140	37x5	....	4,400	4,400	....
LUVERNE												
760	6-4 x5	38.4	Bosch	Shblr	Apple	Disk	3 130	36x4½	....	....	2,500	....
MADISON												
T	6-3 x5	21.6	Remy	Rafid	Remy	Disk	3 120	34x4	....	985	1,085	....
MARION												
...	6-3½x4½	31.2	Bosch	.....	G & D	Disk	3 115	34x4	1,500	1,500	....	....
...	6-3 x5	21.6	Wths	Stmbg	Wths	Disk	3 120	33x4	....	1,350	....	....
...	4-3½x5	22.5	Bosch	Rafid	G & D	Disk	3 115	34x4	....	1,350	....	....
MARMON												
41	6-4½x5½	43.5	Bosch	Stmbg	Bosch	Cone	3 133½	36x4½	3,350	3,350	3,350	....
MAXWELL												
...	4-3½x4½	21.0	Simms	Kngrtn	Simms	Cone	3 102	30x3½	635	655	....	....
McFARLAN												
T	6-4 x6	38.4	Wths	Stmbg	Wths	Cone	3 132	36x4½	2,680	2,680	2,680	....
X	6-4½x6	48.6	Wths	Stmbg	Wths	Cone	3 132	36x4½	....	13,140	2,900	....
McINTYRE												
25	4-3½x5½	19.6	Bosch	Stmbg	G & D	Cone	3 106	32x3½	....	850	....	....
6-40	6-3½x4½	29.4	Briggs	Stmbg	Briggs	Disk	3 120	33x4	....	1,275	....	....
MECCA												
4	4-3½x4½	22.5	Spldf	Shblr	Disco	Plate	3 104	30x3½	....	695	....	....
MERCER												
Spdstr	4-3½x6½	22.5	Bosch	Zenith	U S L	Disk	4 115	34x4	2,750	....	....	....
T-Car	4-3½x6½	22.5	Bosch	Zenith	U S L	Disk	4 130	34x4½	....	3,000	....	....
METEOR												
42	4-4 x5	25.6	A. Kent	Stmbg	Spldf	Disk	3 114	34x4	....	1,075	....	....
45	6-3½x5	32.7	A. Kent	Stmbg	Spldf	Disk	3 126	35x4	....	1,395	....	....
METZ												
22	4-3½x4	22.5	Bosch	Own	.....	Frm Trs	98	30x3	495	....	....	....
25	4-3½x4	24.2	Bosch	A W T	G & D	Frm Trs	105	32x3½	....	600	....	....
MITCHELL												
8	8-3 x5½	28.8	.....	Rafid	Wths	Cone	3 116	34x4	1,450	1,450	....	....
8 of 16	6-3½x5	29.4	.....	Rafid	.....	Cone	3 125	34x4	....	1,250	....	....
MOLINE-KNIGHT												
50	4-4 x6	25.6	Bosch	Shblr	Wagner	Cone	4 128	36x4½	2,500	2,500	2,540	....
40	4-3½x5	22.5	Conn	Shblr	A-Lite	Cone	3 118	34x4	1,375	1,375	....	....
MONARCH												
...	8-3 x5	28.8	A. Kent	Zenith	W. Lord	Cone	3 125	33x4½	....	....	1,500	....
MONROE												
M-3	4-3 x5½	14.4	Conn	Zenith	A-Lite	Cone	3 96	36x3	460	....	....	....
MOON												
6-40	6-3½x5	29.4	Delco	Rafid	Delco	Disk	3 125	34x4	....	....	1,475	....
6-30	6-3½x4½	25.4	Delco	Rafid	Delco	Disk	3 118	34x4	....	1,195	....	....
MORSE												
D	4-4½x5	34.2	Elsmn	Stmbg	G & D	Disk	4 127	36x4½	3,000	3,000	3,000	....
NATIONAL												
Highway	12-2½x5½	36.3	Dixie	Rafid	Wths	Cone	3 128	36x4½	11,900	11,900	12,020	....
Highway	6-3½x5½	29.4	Dixie	Rafid	Wths	Cone	3 126	34x4½	11,000	11,000	11,730	....
Newport	6-3½x5½	33.75	Elsmn	Rafid	Wths	Cone	3 134	36x4½	12,375	12,375	2,400	....
NORWALK												
F	6-3½x5½	29.4	A. Kent	Rafid	G & D	Disk	4 131	37x4	1,875	....	....	....
OAKLAND												
37	4-3½x5	19.6	Delco	Marvel	Delco	Cone	3 112	32x4	1,150	1,050	....	....
40	6-3½x5	29.4	Delco	Johnn	Delco	Cone	3 123½	35x4½	....	1,085	....	....
Spdstr	4-3½x5	19.6	Delco	Marvel	Delco	Cone	3 112	33x4	1,050	....	....	....
OLDSMOBILE												
43	4-3½x5	19.6	Delco	Marvel	Delco	Cone	3 120	32x4	....	1,085	....	....
...	8-2½x4½	26.4	Delco	.....	Delco	Cone	3 120	32x4	....	1,195	....	....
OVERLAND												
83	4-4½x4½	27.2	Mgnto	.....	A-Lite	Cone	3 106	33x4	725	750	....	....
...	6-3½x5½	29.4	Spldf	.....	A-Lite	Cone	3 120	35x4½	....	1,145	....	....
75	4-3½x5	15.6	.....	.....	A-Lite	Cone	3 104	31x4	595	615	....	....
OWEN												
...	6-3½x5½	33.7	Owen	Master	O M	O M	136	35x5	3,750	13,750	3,750	....
PACKARD												
1-25	12-3 x5	43.2	Delco	Own	Bljur	Disk	3 125	36x4½	....	....	2,750	....
1-35	12-3 x5	43.2	Delco	Own	Bljur	Disk	3 135	36x4½	....	....	3,150	....
PAIGE												
6-46	6-3½x5½	29.4	Bosch	Rafid	G & D	Disk	3 124	34x4	1,395	....	1,395	....
6-36	6-3 x5	21.6	Remy	Rafid	G & D	Disk	3 112	34x4	....	1,095	....	....
PARTIN-PALMER												
...	4-3½x5	19.6	.....	.....	.....	.....	3 110	32x3½	675	....	....	....
PATERSON												
4-32	4-3½x5	19.6	Delco	Stmbg	Delco	Cone	3 112	32x4	....	1,095	....	....
6	6-3½x4½	25.4	.....	Stmbg	.....	Cone	3 117	32x4	....	....	985	....

* 6-passenger; † 4-passenger; ‡ 3-passenger.

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
PATHFINDER												
...	6-3½x5	29.4	Wths	Shblr	Wths	Disk	3 122	35x4½	1,685	1,685	....	....
...	12-3 x4	43.2	Wths	Shblr	Wths	Disk	3 122	35x4½	1,975	1,975	1,975	....
PEERLESS												
54	4-3½x5	22.5	A. Kent	Stmbg	G & D	Disk	3 113	34x4	2,800	2,000	....	....
55	6-3½x5	29.4	A. Kent	Stmbg	G & D	Disk	3 121	34x4	2,250	2,250	....	....
48-6	6-4½x8	48.6	Bosch	Own	G & D	Band	4 137	37x5	4,900	....	5,000	....
PIERCE-ARROW												
C-3	6-4 x5½	38.4	Bosch	Own	Wths	Cone	4 134	36x4½	4,300	4,300	....	....
B-3	6-4½x5½	48.6	Bosch	Own	Wths	Cone	4 142	37x5	4,900	4,900	5,000	....
A-3	6-5 x7	60.0	Bosch	Own	Wths	Cone	4 147½	38x5½	5,900	5,900	6,000	....
PILOT												
55	6-3½x5½	36.0	Wths	Stmbg	Wths	Cone	3 126	34x4	1,685	1,685	....	....
75	6-4½x6	48.6	Wths	Stmbg	Wths	Cone	3 132	37x4½	2,400	....	2,485	....
6-45	6-3 x5	21.6	Delco	Rafid	Delco	Plate	3 119	32x4	....	....	....	....
PREMIER												
6-50	6-4 x5½	38.4	Remy	Rafid	Remy	Disk	3 132	36x4½	1,985	1,985	1,985	....
PRATT												
6-50	6-3½x5½	33.7	A. Kent	Rafid	G & D	Disk	4 132	37x4½	2,150	2,150	2,250	....
PULLMAN												
Jr	4-3½x4½	22.5	Spldf	Stmbg	Spldf	Disk	3 116	30x3½	740	740	....	....
6-48	6-3½x5½	33.7	Simms	Stmbg	Wths	Disk	4 124	36x4½	2,500	2,500	2,550	....
R-C-H												
K	4-3½x5	16.9	Bosch	B-D	W. Lord	Cone	3 110	32x3½	....	775	....	....
REGAL												
D	4-3½x5	22.5	Conn	Stwrt	Dyneto	Cone	3 115	33x4	985	985	....	....
F8	8-3 x4½	28.8	Conn	Stwrt	Dyneto	Cone	3 115	33x4	1,200	1,200	....	....
E	4-3½x4	19.6	Conn	Stwrt	Dyneto	Cone	3 106	30x3½	650	650	....	....
REMINGTON												
...	4-3½x4	15.6	A. Kent	.....	W. Lord	Cone	3 104	30x3½	695	695	....	....
Ghd	8-3½x4½	31.2	A. Kent	Zenith	G & D	Disk	3 116	35x4½	1,495	....	....	....
REPUBLIC												
E	6-4½x5	43.3	Delco	Rafid	Delco	Cone	4 133	36x4½	....	12,950	2,950	....
REO												
M	6-3 9-16x5½	30.4	Remy	Johnn	Remy	Disk	3 126	34x4½	....	....	1,250	....
R	4-4½x4½	27.2	Remy	Johnn	Remy	Disk	3 115	34x4	....	875	....	....
RICHMONT												
35	4-4 x4½	25.6	Dixie	Stmbg	Apple	Cone	3 110	33x4	1,885	885	....	....
50	6-4 x4½	38.4	Dixie	Stmbg	Apple	Cone	3 130	34x4	1,095	1,095	....	....
ROBE												
A	8-3 x4½	28.8	A. Kent	Zenith	Detroit	Disk	3 115	34x4	....	1,350	....	....
SAXON												
A	4-3½x4	12.08	A. Kent	Mayer	.....	Disk	3 96	28x3	395	....	....	....
B2	6-3½x4½	20.0	A. Kent	Rafid	Detroit	Disk	3 112	32x3½	785	785	....	....
SCRIPPS-BOOTH												
C	4-2½x4	13.3	A. Kent	Zenith	Bljur	Disk	3 110	30x2½	775	....	....	....
SPAULDING												
H	4-4½x5½	29.0	Simms	Rafid	Ents	Cone	3 120	36x4	....	1,690	....	....
SIMPLEX												
38	4-5½x6½	46.3	Bosch	Nwcm	Rahmr	Disk	4 137	37x5	....	Shaft or chain	....	....
Crane	6-4½x6½	45.9	Bosch	Eismn	Nwcm	Disk	4 143½	37x5	....	....	....	....
SINGER												
Six	6-4 x5½	38.4	Bosch	C. R. G	Wths	Disk	4 138	35x5	13,000	13,000	3,000	....
STANDARD												
8	8-3 x5	28.8	Wths	Zenith	Wths	Disk	3 121	35x4½	....	....	1,735	....
6	6-4 x5½	38.4	Wths	Zenith	Wths	Disk	3 126	36x4½	....	....	2,100	....
STANLEY												
...	Steam	....	.....	.....	.....	.....	130	34x4½	....	1,975	....	....
STEARNS												
L-4	4-3½x5½	22.5	Remy	Shblr	Wths	Cone	3 119	34x4	....	1,395	....	....
S-K-6	6-4½x5½	43.3	Bosch	Stmbg	G & D	Disk	4 134	37x5	....	....	....	....
S-K-8	8-3½x5	33.8	Remy	Rafid	Wths	Disk	3 123	36x4½	....	....	2,050	....
STERLING												
...	4-2½x4	13.2	Conn	Zenith	.....	Cone	3 120	30x3½	475	550	....	....
STEWART												
T	6-3½x5	29.4	Wths	Rafid	Wths	Disk	3 127	34x4½	11,960	....	1,950	....
STUDEBAKER												
4	4-3½x5	24.0	Remy	Shblr	Wagner	Cone	3 112	34x4	1,850	....	885	....
6	6-3½x5	36.0	Remy	Shblr	Wagner	Cone	3 122	34x4	11,000	....	1,050	....
STUTZ												
Br. Cat	4-4½x5½	38.1	Bosch	Stmbg	Remy	Cone	3 129	34x4½	2,000	....	....	....
Bulldog	4-4½x5½	38.1	Bosch	Stmbg	Remy	Cone	3 129	34x4½	....	12,250	....	....
Bldg Sp	4-4½x5½	38.1	Bosch	Stmbg	Remy	Cone	3 130	33x5	....	12,250	....	....
6-Pass	4-4½x5½	38.1	Bosch	Stmbg	Remy	Cone	3 130	34x4½	....	2,300	....	....
*Six-passenger												
VELIE												
22-40	6-3½x4½	25.3	Remy	Stmbg	Remy	Disk	3 115	32x4	1,040	1,045	....	....
15-45	6-3½x5½	29.4	A. Kent	Stmbg	G & D	Disk	4 124	34x4	*1,450	1,400	1,450	....
VIXEN												
S.B	4-2½x4	12.0	A. Kent	Zephyr	.....	.....	106	28x3	395	....	....	....
WESTCOTT												
51	6-3½x5½	29.4	Delco	Rafid	Delco	Disk	3 126	35x4½	....	....	1,595	....
...	6-3½x4½	25.3	Delco	Rafid	Delco	Disk	3 120	34x4	....	1,295	....	....
WHITE												
30	4-3½x5½	22.5	Bosch	Own	Own	Plate	4 115	33x4	2,650	2,700	....	....
45	4-4½x6½	29.0	Bosch	Own	Own	Plate	4 132½	36x4½	....	....	2,800	....
WILLIS-KNIGHT												
84	4-4½x4½	27.25	Dixie	Titan	A-Lite	Cone	4 114	34x4	1,065	1,065	....	....
WINTON												
21	6-4½x5½	48.6	Bosch	Rafid	Air or Elec	Disk	4 136	37x5	3,250	3,250	3,500	....
21A	6-3½x5½	33.7	Bosch	Rafid	Bijur	Disk	4 128	36x4½	2,295	2,295	....	....
* 6-passenger; † 4-passenger; ‡ 3-passenger.												

MORE EXHIBITORS FOR NATIONAL SHOWS

NEW YORK, Nov. 22—A number of additional accessory exhibitors for both New York and Chicago shows follow:

Cleveland Worm & Gear Co., Cleveland
Compression Inner Tube Co.,

Louisville, Ky.
Gas Engine Efficiency Co., St. Louis
K-W Ignition Co., Cleveland
Pull-U-Out Sales Co., St. Louis
Strauss & Buegeleisen, New York
Swedish Crucible Steel Co., Detroit
Victor Lamp Co., Cincinnati
X Laboratories, Boston

NEW YORK ONLY

J. Alexander Mfg. Co., New York
Bridgeport Coach Lace Co.,

Bridgeport, Conn.
M. K. Bowman-Edson Co., New York
Cox Brass Mfg. Co., Albany, N. Y.
Dayton Rubber Mfg. Co., Dayton
Disco Electric Starter Co., Detroit
Eastern Rubber Co., Philadelphia
Ericsson Mfg. Co., Buffalo
Hartford Clock Co., Hartford
J. H. Thomas Shield Co., New York
Marathon Tire Sales Co., New York
Marvel Mist Mfg. Co., Brooklyn, N. Y.
Motor Appurtenances Corp., New York
Motor Necessity Co., Chicago
Motor Products, Inc., Stamford, Conn.
Nonpareil Horn Mfg. Co., New York
G. Piel Co., Inc., Long Island City
Stewart Accessories Co., Detroit
Utility Products Co., Inc., New York
Weston Electrical Instrument Co.,

Newark, N. J.
Woodbridge Chemical Co., New York

CHICAGO ONLY

Apex Electric Mfg. Co., Chicago
Auto Parts Mfg. Co., Milwaukee
Columbus Varnish Co., Columbus
Gray Bros. & Co., Chicago
Greer College of Motoring, Chicago
W. H. Howell Co., Geneva, Ill.
Simplex Short-Turn Gear Co.,

Anderson, Ind.
Wales & Adamson, Chicago

All G. M. Companies Now Paying

NEW YORK, Nov. 17—At the annual meeting of the stockholders of the General Motors Co. yesterday in Jersey City, the directorate was increased from fourteen to seventeen members. President C. W. Nash said regarding the affairs of the company that all the companies in the General Motors Co. are now on a paying basis.

The slate of directors agreed upon follows: Lammont Belin, director of the Aetna Explosives Co.; L. G. Kaufman, president of the Chatham & Phoenix National Bank; Pierre du Pont, S. F. Prior of the Union Metallic Cartridge and Remington Arms Co.; A. H. Wiggin, C. H. Sabin, J. A. Haskell, A. G. Bishop, E. W. Clark, W. C. Durant, H. J. McClement, C. S. Mott, C. W. Nash, Thomas Neal, J. J. Roskob, Albert Strauss and J. J. Storrow.

The old and new boards are compared as follows: New Board—E. W. Clark, J. H. McClement, Thomas Neal, C. S. Mott, C. W. Nash, J. J. Storrow, Albert Strauss, W. C. Durant, Lammont Belin, L. G. Kaufman, Pierre du Pont, S. F. Prior, A. H. Wiggin, C. S. Sabin, J. A. Haskell, A. G. Bishop, J. J. Roskob.

Old Board—E. W. Clark, J. H. McClement, Thomas Neal, C. S. Mott, C. W. Nash, J. J. Storrow, Albert Strauss, W. C. Durant, Joseph Boyer, R. F. Herick, E. D. Metcalf, M. J. Murphy, N. L. Tilney, Jacob Wertheim.



*Indicates sanction by A. A. A.

- Nov. 29-Dec. 4., Omaha, Neb., Track race-meet.
Dec. 9., Des Moines, Ia., Convention, Iowa Retail Automobile Dealers Assn.
Jan. 7, 8, 10, 11., New York, Meeting National Assn. of Automobile Accessory Jobbers.
Jan. 25., Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
Jan. 26-27., Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
Feb. 21-26., Countrywide Electric Prosperity Week.
May 13., New York City, Sheepshead Bay Speedway race-meet.
May 30., Indianapolis, Ind., Track race-meet.
June 17., Chicago, Ill., Speedway race-meet.
June 28., Des Moines, Ia., Speedway race-meet.
July 4., Minneapolis, Minn., Speedway race-meet.
July 4., Sioux City, Ia., Speedway race-meet.
July 15., Omaha, Neb., Track race-meet.
Aug. 5., Tacoma, Wash., Track race-meet.
Aug. 18-19., Chicago, Ill., Elgin road race.
Sept. 4., Des Moines, Ia., Track race-meet.
Sept. 15., Indianapolis, Ind., Speedway race-meet.
Sept. 16., Providence, R. I., Track race-meet.
Sept. 30., New York City, Sheepshead Bay Speedway race-meet.

THE SHOW CIRCUIT

- Nov. 22-27., Binghamton, N. Y., Annual Show, Binghamton Automobile Dealers Assn., State Armory.
Dec. 6-11., Springfield, Mass., Show, Auditorium. H. J. Stacy, manager.
Dec. 31-Jan. 8., New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
Jan. 3-9., New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
Jan. 8-15., Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn., Convention Hall.
Jan. 8-15., Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
Jan. 17-24., Wilmington, Del., Second Annual Show, Wilmington Automobile Trade Assn., Hotel Du Pont. J. H. Nixon, chairman.
Jan. 17-22., Rochester, N. Y., Show, Exposition Park. C. A. Simmons, manager.
Jan. 18-22., Lancaster, Pa., Show, Cone-stoga Park Pavilion.
Jan. 18-22., Baltimore, Md., Show, Baltimore Automobile Dealers Assn., Fifth Regiment Armory.
Jan. 22-29., Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.
Jan. 22-29., Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
Jan. 23-30., Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.

- Jan. 24-29., Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
Jan. 22-29., Montreal, Can., Show, Montreal Automobile Trade Assn., Almy's Building.
Jan. 24-29., Scranton, Pa., Sixth Annual Show, Pleasure Cars, Town Hall. Hugh B. Andrews, manager.
Jan. 29-Feb. 5., Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
Jan. 29-Feb. 5., Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
Jan. 31-Feb. 1-2., Scranton, Pa., Commercial Car Show, Town Hall. Hugh B. Andrews, manager.
Feb. 7-12., Kansas City, Mo., Show, Kansas City Motor Dealers Assn., Convention Hall.
Feb. 9-12., Peoria, Ill., Show, Peoria Automobile & Accessory Assn., Coliseum.
Feb. 14-19., Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
Feb. 19-26., Newark, N. J., Show, First Regiment Armory. C. L. Fitzgerald, manager.
Feb. 20-27., Grand Rapids, Mich., Seventh Annual Show, Grand Rapids Auto & Accessory Dealers Assn., Klingman Bldg.
Feb. 21-26., Louisville, Ky., Show, Louisville Automobile Dealers Assn., Kentucky First Regiment Armory.
Feb. 21-26., Omaha, Neb., Eleventh Annual Show, Omaha Automobile Assn. Clark G. Powell, manager.
Feb. 21-26., Syracuse, N. Y., Show, Syracuse Automobile Dealers Assn.
Feb. 21-26., South Bethlehem, Pa., Show, Coliseum. James L. Elliot, manager.
Feb. 29-Mar. 4., Fort Dodge, Ia., Fifth Annual Show, Fort Dodge Auto Dealers Assn., Terminal Building.
March 1-7., Fargo, N. D., Show, Gate City Auto Show Corp. W. M. Ball, manager.
March 4-11., Boston, Mass., Fourteenth Annual Show, Boston Automobile Dealers Assn., Boston Commercial Vehicle Assn.
March 8-15., Brooklyn, N. Y., Show, Brooklyn Motor Vehicle Dealers Assn.
Mar. 28-Apr. 3., Manchester, N. H., Show, under auspices of Couture Bros.; Academy.

Motor Car Securities Quotations

	Nov. 20 1914	Nov. 20, 1915
	Bid Asked	Bid Asked
Ajax-Grieb Rubber Co., com.	150	350
Ajax-Grieb Rubber Co., pfd.	100	101 110
Chalmers Motor Co., com.	97	145 160
Chalmers Motor Co., pfd.	93 1/2	102 104
Chevrolet Motor Co., com.	123	126
General Motors Co., com.	61	63 1/2 419 422
General Motors Co., pfd.	87 1/2	87 1/2 114 1/2 116
B. F. Goodrich Co., com.	30	22 75 77 1/2
B. F. Goodrich Co., pfd.	37	111 112
Goodyear Tire & Rubber Co., com.	175	157 332 343
Goodyear Tire & Rubber Co., pfd.	111	111 113 1/2
International Motor Co., com.	35	38
International Motor Co., pfd.	55	55 56
Kelly-Springfield Tire Co., com.	53	54 267 302
Kelly-Springfield Tire Co., 1st pfd.	70	75 77 1/2
Kelly-Springfield Tire Co., 2nd pfd.	85	95 270 277
Maxwell Motor Co., com.	14	14 1/2 73 1/2 73 1/2
Maxwell Motor Co., 1st pfd.	43	48 95 101
Maxwell Motor Co., 2nd pfd.	17	18 55 56 1/2
Miller Rubber Co., com.	245	245 250
Miller Rubber Co., pfd.	100 1/2	102 1/2 110 1/2
Packard Motor Car Co., com.	89	89 102
Packard Motor Car Co., pfd.	89	89 102
Peerless Motor Car Co., com.	35	35 40
Peerless Motor Car Co., pfd.	65	65 75
Portage Rubber Co., com.	95	95 100
Portage Rubber Co., pfd.	17	17
Regal Motor Car Co., pfd.	10 1/2	11 1/2 31 32
Reo Motor Truck Co., com.	21 1/2	21 1/2 54 56
Stewart-Warner Speed. Corp., com.	42	42 52 52
Stewart-Warner Speed. Corp., pfd.	92	92 102 112
Studebaker Corp., com.	27	151 153
Swinehart Tire & Rubber Co., com.	45 1/2	44 1/2 53 54
U. S. Rubber Co., com.	94	96 107 108
U. S. Rubber Co., 1st pfd.	110	110 116
White Co., pfd.	71	71 222 222
Willis-Overland Co., com.	85	90 112 114

*Par value \$10; all others par value \$100.

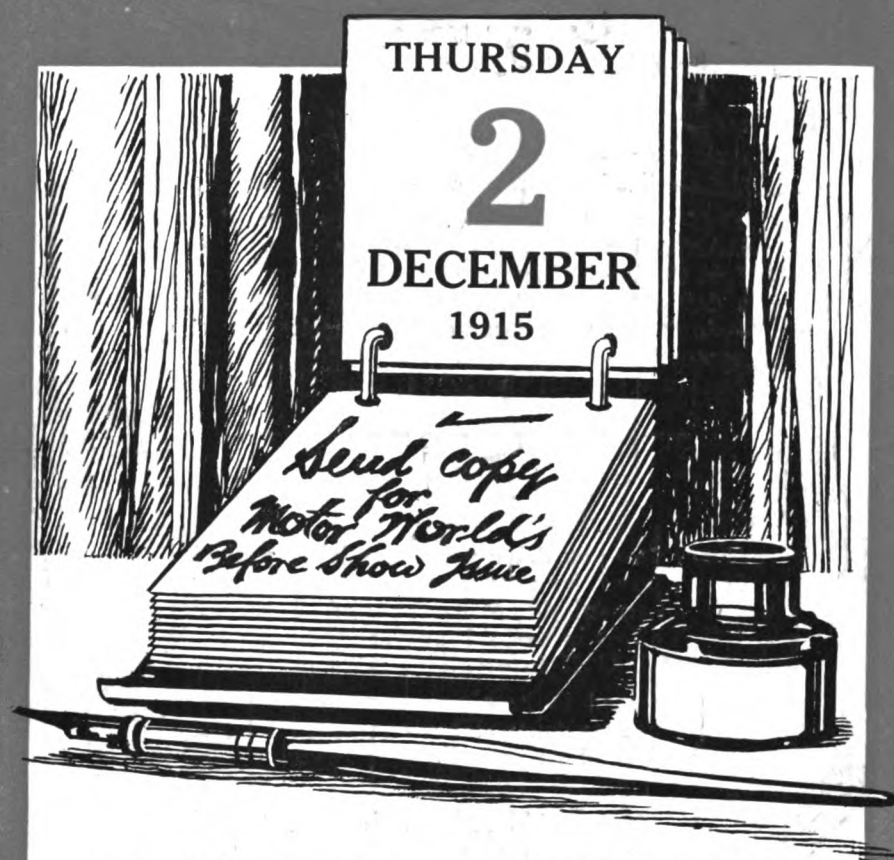
MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 9

New York, December 1, 1915

Ten cents a copy
Two dollars a year



MOTOR WORLD'S BEFORE SHOW ISSUE Out December 22nd

Jobbers, Dealers and Garage Owners will get your message if it appears in this big merchandising number. It will be a purchase guide during 1916. Please send advertising copy early.

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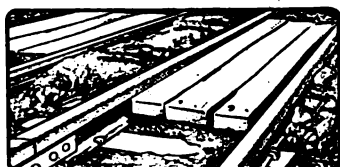
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Name Car Model
Address Year
Car Make

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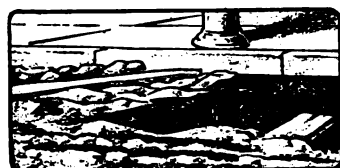
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Cobble Stones and All Other Road
Irregularities**



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As far as comfort is concerned, every road is a smooth road for the man whose car is equipped with the

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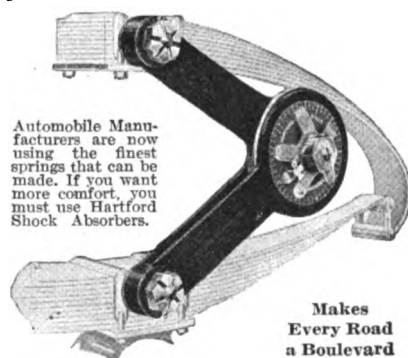
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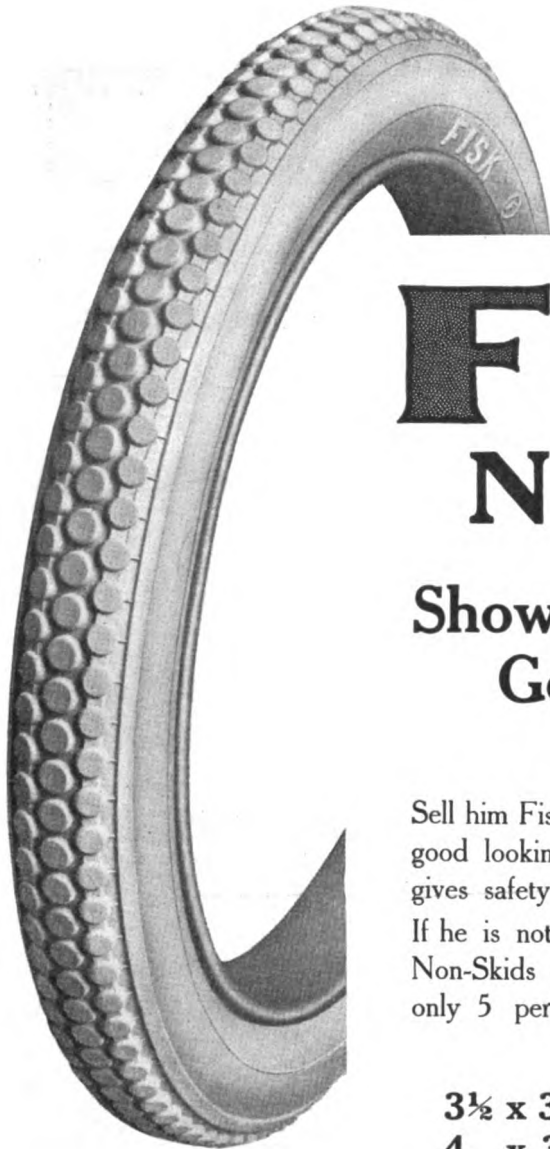
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3½ x 30 - \$12.20	4½ x 34 - \$27.30
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*Fisk Plain Tread prices are 5%
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The bearings
that free your motor
car from friction—

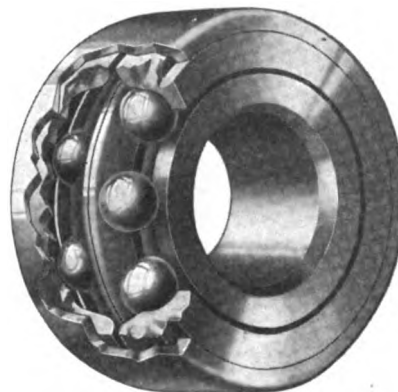
NEW DEPARTURE BALL BEARINGS

American Made for American Trade

Friction takes its toll of power—here a little, there a little, yet in the sum total of the years your car serves you, tribute paid to friction becomes the big source of up-keep expense, because repairs are needed oftenest in the mechanism where friction is present.

The true rolling motion of the steel ball has made the ball type of bearing the most efficient and most universally used anti-friction bearing.

Stop the power loss—reduce up-keep—prolong the life of your car with *New Departures*—the bearings of *Quality, Precision, and Endurance.*



The New Departure Double Row. A "fool proof" unit carrying all the loads and stresses simultaneously from whatever direction they may come with equal efficiency and with a reduction of friction to the vanishing point.

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The Overland Six gives greater dollar for dollar value than any other six cylinder car ever built.

We believe that the motor is positively the nearest approach to perfection yet achieved in six cylinder construction.

With a bore of $3\frac{1}{2}$ inches and a stroke of $5\frac{1}{4}$ inches it easily develops full 45 horsepower. It gives a surplus of power over anything your patrons will ever require in ordinary use.

And it possesses a sum total of flexibility, smoothness and absolute dependability never before attained in a six cylinder motor.

The Overland Six is a big, roomy car, seating seven passengers comfortably.

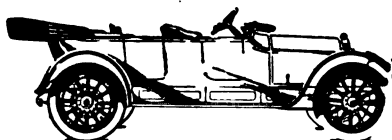
It is unusually rugged and strong in every detail of construction.

No prospective purchaser of a six cylinder automobile can fail to be impressed by this car.

The Willys-Overland Co.

Toledo, Ohio

Overland
WILLYS-OVERLAND CO.



Overland Model 86, Six Cylinder Touring Car
Price - - \$1145, f. o. b. Toledo

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When writing advertisers please mention Motor World



Vol. XLV

New York, U. S. A., Wednesday, December 1, 1915

No. 9

ACCOUNTING

Get a Business System That Will Tell You
Where You Stand and Where You Are Going

Motor World is NOT in the accounting business. Motor World is in the EDUCATIONAL field.

Last Spring we began a campaign to induce dealers and garagemen to sell accessories. That campaign has been continued and will be continued.

During the past summer a campaign of house-cleaning in garages and dealers' establishments was started. This showed the difference between the shop where dirt is everywhere, where order is nowhere, and where money is lost. On the opposite page was shown the orderly shop, the clean shop, the money-making shop.

Last week we started a new line of work—accounting.

It is not a new campaign, it is only another phase of Motor World's Campaign for Greater Profits and Better Business which has been going on for months. Motor World is not advancing its particular system of accounting through mercenary motives.

Better System

Again: Motor World is not in the accounting business but in educational work. One of the greatest educational works is to get better systems of business in garages and dealers' places.

We devised this system of accounting in order to start all our readers thinking on the subject of better business systems, better office management, greater internal efficiency.

We want every dealer and every garageman to read over these system stories. Install whatever system you like, but GET SOME SYSTEM. Make your best effort to get a good system—a system that will meet your requirements and not an expensive,

burdensome work that will fail because of its complication. GET A SYSTEM.

The best system of accounting is one that will tell you what you ought to know about your business at the time you ought to know it. If you want to know your profits on gasoline sales each week your accounting system should be such as to show you this on Saturday night.

Your monthly statements should show profits from storing cars; profits from repairing; profits from accessories sold; profits from the supply of parts; profits from the sale of cars; in short, profits from every department of your business.

Know Your Costs

You cannot afford to run a department of your business and not know how much it is costing you and how much you are gaining or losing in that department. If you run your business without knowing these facts you are not on the road to success.

If you have not a good system of accounting today. GET ONE. We do NOT CARE WHOSE you get but, be sure it is a good system, one that will meet your requirements and one that you can keep after you get it.

Don't install a system that is more work than value. Don't install a system that you will operate for a month or two and then throw away. Install one that you will develop as the requirements of your business increase.

The Second Instalment of articles on the Motor World Simplified System of Accounting appears on the next page. Read it. And GET A SYSTEM. And after you get it, OPERATE IT!

The Motor World Simplified System of Accounting

For Dealers and Garagemen—All in One Book, Under One Cover

(Copyrighted by the Motor World Publishing Co.)

Instalment No. 2

IT will be remembered by the reader that in the Motor World Simplified System of Accounting there are two principal forms, No. 1 and No. 2, and that No. 1 is called Cash Receipts and Sales Record and No. 2 the Cash Paid and Expense Record.

Form 1 represents money coming in. It is an income sheet.

Form 2 represents money going out. It is an expense sheet.

The forms having been explained last week, we may now proceed to do business, filling in the entries as they might occur in a running business. In order that the reader may not be required to look first at one form and then the other we shall take up one at a time. First Form 1, which is called the CASH RECEIPTS AND SALES RECORD and is for entering the income of the business.

Down the sides of this form are letters of the alphabet. These will be used in referring to the entries. Different transactions are covered by each entry. Thus:

Entry A—Entering a cash sale.

Entry B—Entering a charge sale.

Entry C—Entering monthly storage charges.

Entry D—Entering payment of customers' monthly accounts.

Entry E—Entering miscellaneous earnings.

Entry F—Making allowances to customers, and payment of their accounts.

Entry G—Entering cash sales to transients.

Entry H—Entering borrowed money.

Entry I—Entering notes taken from customers. Entering bad debts.

Entry J—Entering notes paid to you.

Let us assume that the garage we are describing on these forms is—

Selling gasoline, oil and grease.

Repairing cars.

Selling accessories, supplies and parts.

Storing cars.

Selling cars, used and new.

Let us also assume that it is the 31st day of January, 1915, and that the proprietor has just come down from break-

fast. The day's business is about to begin.

Form 1

The Entering of a Cash Sale

(Entry A)

(Note—When the story refers to Entry A, you should look at the entry marked A on the form. To make it easy to follow the lines, the letters have been put on in four places—at each side and twice in the center.)

The first thing that happens this morning is the arrival of John Jones in his car. He wants 20 gals. of gasoline. The gasoline man fills Jones' tank, and collects at 16 cents a gal., which is a total of \$3.20. The gasoline pump man then makes out a sales slip, which was mentioned in the first instalment.

Let us assume that this garage uses these sales slips. They are nothing more than a little slip made up something like this:

SMITH'S GARAGE Smithtown

No. 105 Date, Dec. 31, 1915
Customer—John Jones

Gasoline (20)	3 | 20
Oil	
Grease	
Other	
Total	3 | 20

The slips are numbered from 1 up. This one is No. 105. These numbers should be put on when the slips are printed. Such sales slips can be purchased easily.

On this slip the man who sells the gasoline puts down the name of the customer, who is John Jones. He fills in the date, the amount of gasoline sold and the price.

There are two slips, an original and a carbon copy. The gasoline man collects the \$3.20 from Jones, gives Jones the car-

bon slip, and takes the money and the original slip to the office. The money goes into the cash drawer and the slip is—for the time being—put onto a spindle on the desk, one of these sharp wires sticking up in a metal block.

Jones probably throws away the slip the gasoline man gave him. Since he paid cash he doesn't feel like bothering with it. But if the sale were charged and Jones were requested to O. K. the slip he probably would want to save it to keep a check on the garageman.

And NOW—we come to the first entry—Entry A. (Refer to it on Form 1 that came as a supplement last week with Motor World.)

We must make one entry on the Debit side and one on the Credit side. WHAT IS OUR DEBIT ENTRY?

Refer to our definition of last week, which is that—

Debit means to "RECEIVE BENEFIT."

Credit means to "GIVE BENEFIT."

You have these two definitions, so, as in all entries, you ask yourself: What part of your business received the benefit? The answer is: Your CASH, which may be otherwise expressed as your pocketbook, your cash register, your bank balance or the till, but henceforth referred to as CASH. Your supply of cash was increased; in other words, received benefit.

Debit means to receive benefit. CASH has received benefit, hasn't it? Therefore, you Debit Cash, which means that on the Debit side you make the entry under the Cash heading, which is No. 6, and is entitled ALL CASH RECEIVED. Here you set down the \$3.20 received for the gasoline.

The remainder of the Debit entry is simple. It consists of writing down in Column 7 the name of John Jones, from whom the \$3.20 was received. You have now made your Debit entry. It may be added in explanation that making a Debit entry or debiting an account consists in making the entry on the Debit side. Thus, if you want, for instance, to "Debit

DEBIT means to RECEIVE BENEFIT—CREDIT means to GIVE BENEFIT

DEBIT means to RECEIVE BENEFIT—CREDIT means to GIVE BENEFIT

Customers Accounts," you find the CUSTOMERS ACCOUNTS column on the Debit side and make the entry there.

One point will aid you in knowing how to Debit. Remember that whenever money is received it is Debited under ALL CASH RECEIVED, which is Column No. 6. And if the account is charged to a customer it goes at the left of Column No. 6 under CUSTOMERS ACCOUNTS, No. 2.

Also remember this: When asking yourself what gave the benefit and what received the benefit the "what" means what part of your business. In this sale of gasoline there is no question but that CASH received the benefit. The money itself came from John Jones, but you are NOT to consider HIM in asking this Debit and Credit question. You are to consider SOME PART of your business.

You have now figured out this Debit entry and the why of it. Let us now turn to the Credit entry. Ask yourself: WHAT IS OUR CREDIT ENTRY?

In determining the answer you must ask: In this sale of \$3.20 worth of gasoline what part of the business "gave the benefit." The answer is: The gasoline department. Therefore, you Credit Gasoline. This consists in turning to the Credit side of the sheet and setting down the \$3.20 under Column No. 9, which is headed GAS, OIL, GREASE.

You will also notice that this GAS, OIL, GREASE column is a subheading under INCOME ACCOUNTS, so that when you Credit Gasoline with \$3.20 you also set down one item of earning or income for your business. If you go ahead and account correctly, setting down Debits and Credits as you should, you will have the earnings of all your departments divided into proper divisions when you get through. Then if you add up the columns under INCOME ACCOUNTS you will have your income by departments.

In Column No. 10 you set down 105, which is the number of the gasoline sales slip that the pump man made out when he sold the gasoline. This is a cash sale, so, as said before, Jones probably throws the slip away. But the garageman keeps these on file in a drawer and, if it were a charged sale, and Jones some later day kicked on the item, the original slip could be located and Jones could be shown his O. K. on it.

There is also this: At the close of the day the owner of the business, or the accountant, should run his or her eye down this slip number column to see if the numbers run in order. If any number is missing the chances are some one forgot to enter a sale, and this matter may be at once chased down and the

entry located. If the slip were not located and the sale not entered the cash would be more than shown by the books.

We are nearly through with this entry, and what we are about to say has to do with ALL ENTRIES, so remember it. It concerns the EXPLANATION column, No. 4, on the Credit side, between Columns 16 and 17. We take pains to locate this definitely because there are several other EXPLANATION columns.

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- 1 No. 26 division leather-tabbed alphabetical index.
- 3 additional special leather-tabbed division leaves.
- 100 of Form 1.
- 100 of Form 2.
- 200 of Form 3.

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Form 2.....	1.75 per 100
Form 3.....	1.75 per 100

You will notice that every time an entry is made anywhere on the page there is also an entry in this EXPLANATION column. This holds good throughout. Therefore, in this case, where John Jones paid us \$3.20, we write as an EXPLANATION that it is "Gas (20)", which means, "twenty gallons of gasoline."

Now, you may not know it, but you have become a Double Entry bookkeeper already. You will notice that the ALL CASH RECEIVED, Column No. 6, is on the Debit side of the sheet, isn't it? And the GAS department, Column No. 9, is on the Credit side, isn't it? You have put the \$3.20 down in both of these columns, haven't you? Well, that's Double Entry. And when you come to total your sheet the \$3.20 will be added twice. If you put it down on one side and forgot to put it on the other the two sides of the sheet would not be in balance when you added them up at the close of the day, the week or the month.

The reader may ask: Supposing that Jones had this gasoline charged, what would I do then? The answer is simple.

If he PAYS CASH it goes under ALL CASH RECEIVED, Column No. 6.

If he has it CHARGED, it goes under CUSTOMERS ACCOUNTS, No. 2, on the Debit side. The Credit entries would be the same as in Entry A. It would be Debited the same as is the \$4.75 that is

charged to James Smith in Entry B. And since we are discussing charged sales, let us go on to Entry B.

Entering a Charged Sale (Entry B)

The repairshop foreman now walks into the office with a repair job ticket and says James Smith's repair job is finished. Smith is a regular customer and has a charge account. He does not pay cash.

He has had two spark plugs put in and a little other work done in connection which necessitated three hours of labor, for which the charge is 75 cents an hour. The two plugs sell for \$1.25 each, which is \$2.50, all of which appears on repair job ticket No. 86. This ticket, so far as records are concerned, corresponds to the gasoline sales slip. It is possible that the garageman who is going to use this system has a repairshop ticket which will suit his needs. Some form of repair job ticket is necessary, however, and on the reverse side of the ticket should be some form of keeping record of the time spent by the workman, as well as parts and material used.

NOW comes the making of the entries. We must make two, of course, a Debit entry and a Credit entry. Now, which is which?

Do you remember that definition? Debit means to "receive benefit" and Credit means to "give benefit"? Well, then, ask yourself the question: What RECEIVED THE BENEFIT?

Let's see; the benefit was \$4.75, wasn't it? CASH didn't get it, did it? For the account isn't paid yet. No, it wasn't CASH, so it must be something else.

Remember this. One part of your business is your CUSTOMERS ACCOUNTS, which is what your regular charge customers owe you and which, unless you are a poor business man, is as good as real money, for you are not supposed to extend credit unless you are pretty sure of getting the money. So in this case it is your CUSTOMERS ACCOUNTS which receives the benefit. And so you must Debit CUSTOMERS ACCOUNTS.

Remember what was said about "debiting," which was that when you Debit anything you merely make the entry on the Debit side of the page. Therefore, you turn to the Debit side of the page and find CUSTOMERS ACCOUNTS. Then, under this heading, Column No. 2, you set down \$4.75, and in the NAME column put "James Smith," the name of the customer. You have now made your Debit entry.

Now for the Credit entry. Credit,

DEBIT means to RECEIVE BENEFIT—CREDIT means to GIVE BENEFIT

DEBIT means to RECEIVE BENEFIT—CREDIT means to GIVE BENEFIT

you remember, means to "give benefit." Therefore, ask yourself: What part of the business gave this benefit?

The \$4.75 is for putting in two spark plugs; \$2.50 is for the plugs, which came from the Accessory Department and \$2.25 represents labor from the Repair Department. Therefore, the benefit came from these two departments. So, you Credit Repairs with \$2.25 and Credit Parts and Accessories with \$2.50. Remember, we said that when you "Credit" anything you simply make the entry on the Credit side under the proper heading.

Therefore, you go to the Credit side and enter \$2.25 under REPAIRS and enter \$2.50 under PARTS AND ACCESSORIES.

And now for the EXPLANATION that goes with every entry. The job was putting in two new plugs, so you write "Changing spark plugs."

In the R SALES No. column, No. 12, you enter the number of the repair job order. If the accessory were sold to the customer and taken away by him there probably would be made out a slip similar to that used in the sale of gasoline, but in this case the repair job order number, which is 86, is sufficient. Or the A SALES NO. column, No. 14, might include the number of the requisition which the repairman made out when he went to the stockroom after the part, provided a requisition is used.

AGAIN you have performed a Double Entry; you have Debited CUSTOMERS ACCOUNTS and Credited REPAIRS, and PARTS AND ACCESSORIES.

Supposing Smith paid cash and did not have this amount charged, what then? In that case the entry would be handled the same as Entry A. The Debit entry would have been under ALL CASH RECEIVED, Column No. 6, instead of under CUSTOMERS ACCOUNTS, Column No. 2.

In this entry we have illustrated an important point; it is the splitting up of income among different departments. Without some system of this kind the whole \$4.75 would have gone into the cash drawer and you would not have known how much each department had earned.

You will notice that the whole \$4.75 is charged to Smith in a lump sum but is split between two departments on the Credit side.

And here is another instance of the advantage of Double Entry. If the whole amount were not entered under the INCOME ACCOUNTS on the Credit side the sheet would not balance when totaled at the end of the day, week or month. Then you would have to go back and find out where you had made the mis-

take. Double Entry compels you to be accurate.

Monthly Storage Charges

(Entry C)

About the first of the month you should enter the charges for the monthly storage of your customers. You have to pay your rent in advance and it is fine if your customers do the same, but even if they don't it is well to make the charge on the books at the beginning of the month.

We, it is true, are discussing the last day of January, 1915, but for purposes of illustration we shall make a monthly storage entry now. The customer is J. K. Harris. We charge him \$25 a month for caring for his car. We want to enter it, and we, of course, must make a Debit entry and a Credit entry.

Now, how do we do it? What is our Debit entry?

Do you remember our definition? Debit means to "receive benefit"? Therefore, ask yourself: What part of the business RECEIVES THIS BENEFIT?

Now you may say that you can't see where there is any benefit at all, because you merely live in hope that some day Harris will pay the \$25 and in the meantime you have no benefit at all. You are wrong on that score. You have received just as much benefit as if you did a repair job for him and charged it, or sold him a horn on credit. You err if you do not consider this debt of Smith's to you a benefit. You must so consider it if you are to operate your business properly.

Therefore, assuming that it is a benefit, what part of the business gets the benefit? The answer is, CUSTOMERS ACCOUNTS, so you Debit CUSTOMERS ACCOUNTS. That means that you go to the Debit side of the page, find CUSTOMERS ACCOUNTS, which is No. 2, and enter "\$25, J. K. Harris." That is your Debit entry.

Now, as to the Credit entry, remember that definition: Credit means to "give benefit." Therefore, ask yourself: What part of the business gave the benefit? The answer is not difficult. It was the Storage Department. So you Credit STORAGE. That means that you turn to the Credit side of the page and under STORAGE write "\$25."

The EXPLANATION, which is made with all entries, is that it is "Storage for January."

AGAIN you have performed a Double Entry, You have Debited CUSTOMERS ACCOUNTS and Credited STORAGE. Also, by this Crediting of STORAGE you have set down \$25 as income for the

Storage Department. This entry is much the same thus far as Entry B.

Ordinarily the monthly storage of each regular customer would not be entered in this way. The garageman would add up all of his regular storage accounts and would Debit the lump sum under CUSTOMERS ACCOUNTS, Column No. 2, Debit side. He would Credit the same amount to STORAGE, Column No. 15, Credit side, and would write "Monthly Storage Customers, January" in the EXPLANATION column. This would save space and labor and the total would come out the same. This is not illustrated on the forms.

In case it were transient storage it would be handled the same as Entry A. He would Debit CASH and Credit STORAGE. This, we say, would be the same as Entry A, because it is assumed that all transient business is for cash only.

Paying a Charge Account

(Entry D)

Let us assume that the storage has all been charged up in a lump sum and that Harris comes in to pay his account. He gives a check for \$25 in payment for one month. We must, of course, make a Debit entry and a Credit entry.

What is the Debit entry?

Do you remember that definition: Debit means to "receive benefit"? Ask yourself the question: What part of the business receives the benefit?

Harris is paying us some real money, isn't he? Therefore, it is a receipt of cash and so CASH receives the benefit. Therefore, we must Debit CASH. That means that we turn to the Debit side of the page and find the CASH column. Also, we are helped in knowing where to make this Debit entry because we know that whenever any money comes in it is Debited under ALL CASH RECEIVED, Column No. 6. So we enter the \$25 under ALL CASH RECEIVED, Column No. 6. We have made our Debit entry.

Now for the Credit entry. Remember the definition: Credit means to "give benefit"? Therefore, ask yourself: What part of the business gave this benefit?

The money came from a customer, did it not? Hence, the benefit was derived from CUSTOMERS ACCOUNTS. Therefore, we Credit CUSTOMERS ACCOUNTS with the \$25.

Right here is a word of guidance. We have been dealing with a CUSTOMERS ACCOUNTS column on the Debit side, have we not? And the reader, who is unfamiliar with accounting, might believe this was the place to make this

DEBIT means to RECEIVE BENEFIT—CREDIT means to GIVE BENEFIT

DEBIT means to RECEIVE BENEFIT—CREDIT means to GIVE BENEFIT

entry. But here is the point: REMEMBER IT! We are making a Credit entry, not a Debit entry. And making a Credit entry always consists in setting down the figures on the Credit side; therefore, we cannot use this same CUSTOMERS ACCOUNTS column that we have been using, but must see if there is not one on the Credit side.

Run your eye across the Credit side and see if you can find one. There it is! No. 2, away over at the right, the extreme right hand side of the page. So this is where this Credit entry must be made. Here we write "J. K. Harris, \$25," which means that he paid us \$25 on his account.

Now, by Entries C and D, we have shown how a charged account is entered when charged and when paid. The amount was entered four different times, but it got into the income of the storage department but once. These four entries record four things—

1—That Harris owed the business \$25. (Entry C, Debit.)

2—That the Storage Department earned \$25. (Entry C, Credit.)

3—That the business received \$25 in cash. (Entry D, Debit.)

4—That Harris no longer owes \$25. (Entry D, Credit.)

Miscellaneous Earnings

(Entry E)

This time Harris calls up and says he broke down and wants to be towed in. He tells where he is and the foreman says the job will cost \$4. Before the driver leaves with the tow car the foreman makes out a sales slip or order, which we will call a miscellaneous sale and does not need a number, although a number may be placed thereon if desired. If Harris does not pay cash for the job the driver has him O. K. the slip before bringing the car in. After returning to the garage the driver turns the slip in at the office.

Now, we must, as usual, make a Debit entry and a Credit entry. What is our Debit entry?

Debit, you remember, means to "receive benefit," so you ask yourself: What part of the business receives this benefit?

Let us assume that Harris does not pay cash. He has it charged. By this time the reader should have become fairly well familiar with the fact that when a customer has anything charged the benefit is received by that part of the business that is called CUSTOMERS ACCOUNTS, so we shall Debit CUSTOMERS ACCOUNTS.

Let the reader stop right here, before

going further, and see if he can figure out how to handle the entry.

Here is the way it is done, as has been told several times before: To Debit an account we find that account on the Debit side and make the entry. So we find CUSTOMERS ACCOUNTS on the Debit side, Column No. 2, and enter "\$4, J. K. Harris." That is our Debit entry.

Now for the Credit entry. The question is: What part of the business gave this benefit?

Was it the repair department? It might have been. Was it the storage department? It might have been. In fact, it might have been any department, depending on who paid the salary of the man who did the job; or which department owned the tow car. But for purposes of illustration let us assume that it was difficult for the garageman to say which department it was, so he classes it as MISCELLANEOUS. The benefit came from the MISCELLANEOUS account, or department, although it can hardly be called a department.

This MISCELLANEOUS account is No. 17 on the Credit side, and it is a Credit entry we are making. So we enter \$4 and under EXPLANATION write "tow in." You will also notice that this MISCELLANEOUS column is included under INCOME ACCOUNTS, so that when the INCOMES are added up the \$4 will be included.

It is best not to have too many MISCELLANEOUS entries, because this may be robbing some regular department. It does not depend upon what was done, but upon which department did the work. And if the Storage Department did this towing job it should, of course, get that income.

This concludes this week's instalment, although it does not conclude Form 1. It will be finished next week. The object of this instalment is to impress upon the mind of the reader who does not know accounting the meanings of Debit and Credit and how to make Debit and Credit entries.

Each reader should carefully study this article over several times. Make sure you get EVERY POINT. You are building the foundation of your future accounting work, and the firmness with which you build now will determine the strength of your structure later on.

And if there is a single point on which you are not clear, write to the System Editor of Motor World. We are at your service. We want you to KNOW.

As a suggestion—Take several items that come up in your everyday business and see if you can enter them on the Debit and Credit sides of the sample

form that came as a supplement last week. If you make such an attempt and then care to tell Motor World what you have done we will gladly tell you whether you are right. Next week we conclude Form 1.

Here are five questions. The answers will appear with next week's instalment of the story:

HOW DO YOU ENTER THESE?

Question No. 1,000—Charles Brown rents a touring car for 3 hours at \$4 an hour and pays \$12 cash.

Question No. 1,001—James Smith buys a tire for \$16 and has it charged.

Question No. 1,002—A transient has his car washed, polished and stored for the night. Wash and polish, \$1.50; storage, \$1. He pays cash.

Question No. 1,003—A check for \$28 comes in by mail, paying for the monthly account of William Peters. Storage, \$25; one horn, \$3.

Question No. 1,004—Seven transients buy gasoline; sales, \$2.40, \$3.20, \$1.60, \$1.82, \$2.40, \$3.00 and \$5.00. Slips are Nos. 109-115.

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DEBIT means to RECEIVE BENEFIT—CREDIT means to GIVE BENEFIT

Simplification the Keynote of 1916 Starting and Lighting Apparatus

Two-unit Systems Increasing Except for Small Cars—Wiring Improved and Controls Eliminated—Characteristics of the Principal Systems

THE electric lighting and engine starting systems which will be used on the 1916 cars are much simpler than ever before. At the same time, they are lighter and more accessible. These are the most noteworthy features of the new equipment.

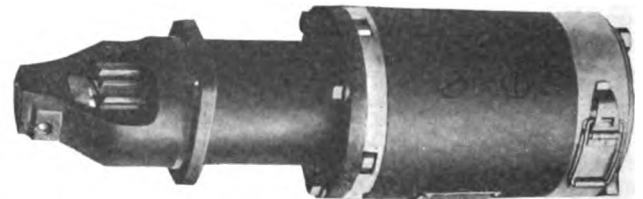
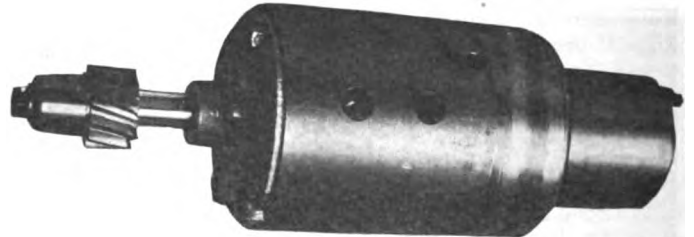
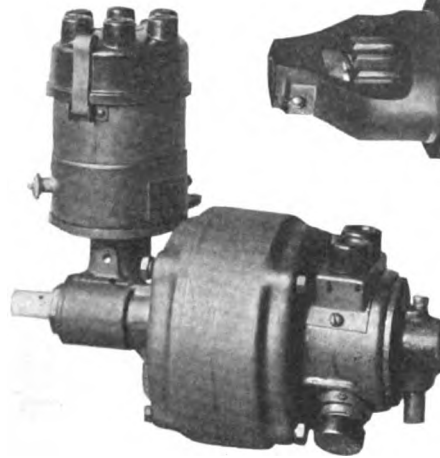
Insofar as the equipment as a whole is concerned, not the least significant of the trends of the time is the marked leaning toward the use of two-unit installations. In general, it has been found that for some of the larger cars the two-unit system is unqualifiedly the best. For the smaller machines, on the contrary, the single-unit installation has been found to be best.

This may be explained roughly by stating that whereas the current required for lighting a car is about the same regardless of the size of the car, starting the car, however, is another question, and the larger the motor, the more current is required for the work. So with the larger cars it has been found expedient to make the starting motor and the generator separate so that their sizes can be proportioned to the work to be done. With the smaller machines these two units profitably can be combined in one.

Another significant trend is the elimination of controls. Heretofore it has been thought advisable in a great many cases to provide for varying amount of current delivered to the battery according to the temperature of the atmosphere—more in winter and less in the summer. Now, however, experience has made plain that if the generator will supply sufficient current for cold weather the amount furnished for warm weather will not be too great to effect the health and efficiency of the battery.

There are not many different methods in use for connecting the starting motor of a two-unit system to the engine. Practically the Bendix pinion reigns supreme in every instance where the

Westinghouse combined generator and ignition unit, illustrating the noteworthy compactness of the new model



Upper—Westinghouse starting motor with helical tooth, magnetically-operated pinion shift. Lower—Westinghouse motor with Bendix pinion and outboard bearing

does to kill an engine by withholding oil, but ultimate death is equally sure in either case.

For the wiring the motor car manufacturer has to take the blame. It is infinitely better than it was a year ago. Wires in armored casings are the rule and wires are generally shorter than of yore. Clearly marked connecting terminals, easily accessible fuses, different colored wires and such aids to upkeep are found on most cars, but it is still possible to see room for improvement.

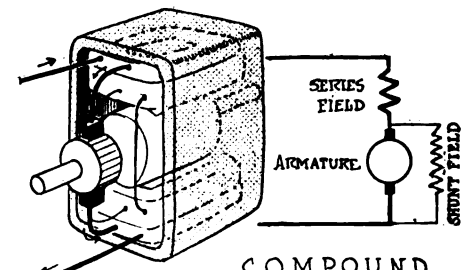
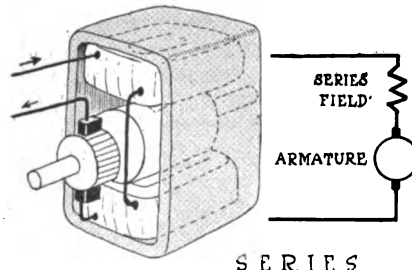
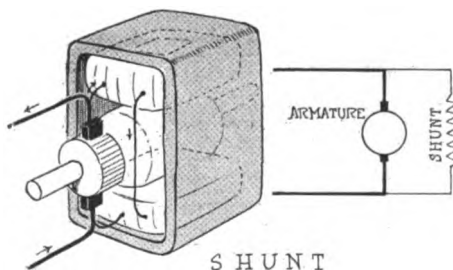
It is becoming recognized that the proper place for all junctions and connections is on the dashboard or the cowl board, preferably the latter, and that all switches and other controls should be brought close together. It is easy to trace a long wire to a lamp or to the battery, but there is danger in a maze of cross connections from switches to fuses, fuses to junction boxes, and so on.

Apart from the battery and the wiring the next weak spot seems to be the ten-

toothed flywheel is employed, and there is no additional gear reduction between the crankshaft and the armature shaft of the motor.

There is still a noteworthy number of shapes and sizes and patterns for generators and starting motors, not because of the numerous makes, but on account of the multifarious patterns made by each manufacturer in the majority of instances.

From the users' viewpoint the weak parts of the electrical equipment are the wiring and the battery. For the latter the user is himself altogether responsible. If the battery is not kept full, and if the hydrometer is not used regularly, trouble is certain. It takes longer to kill a battery by refusing it water than it



Diagrams showing the three fundamental systems of winding the magnetizing coils of dynamos

STARTING AND LIGHTING SYSTEMS THAT ARE USED ON THE VARIOUS MAKES OF CARS

WESTINGHOUSE	DELCO	REMY	GRAY & DAVIS	BIJUR	APLCO	DYNETO	AUTO-LITE	DISCO	U. S. L.	ALLIS-CHAL.	WAGNER	BOSCH	DETROIT	LEACH-NEV.	SHIMS	NORTH EAST
Allen	Auburn	Auburn	Chalmers	Apperson	Arbens	Detroit	Chevrolet	Argo	Dispatch	Grant	Moline	Marmon	Ross	Haynes	Maxwell	Dodge
Barley	Buick	Inter-	Chandler	Farmack	Briscoe	Franklin	Empire	Bell	Mercer	Partin-	Knt.	Studebaker	Saxon			
Halladay	Cadillac	State	Losier	Hupmo-	Cameron	Harvard	Jackson	Crow-Elk.		Palmer						
Biddle	Cole	Madison	Mets	bile	Elkhart	Regal	Overland	Mecca								
Case	Davis	Oakland	Morse	Jeffery	Herff-	Chalmers	Willys-	Monitor								
Daniels	Moon	Partin-	Paige	Packard	Brooks	Spaulding	Knt.									
Dorris	Oakland	Palmer	Peerless	Scripps-	Luverne											
Dort	Oldsmobile	Reo	Velie	Booth	Wayne-											
Egger	Paterson	Stutz		Winton	Richmond											
Glide	Pathfinder	Velie														
Kissel	Pilot															
Lexington	Premier															
Locomobile	Republic															
Marion	Westcott															
McFarlan																
Mitchell																
National																
Pathfinder																
Pierce-Arrow																
Pilot																
Pullman																
Singer																
Standard																
Stearns-Knight																
Stewart																

The Westinghouse equipment is the most popular one as it is standard on 24 makes of cars, Delco is next with fourteen, then come Remy, and Gray & Davis with eight each, Bijur and Aplco with seven and Dyneto and Auto-Lite with six

dency of users either to swamp the generator with oil or not to oil it at all. An armature spindle of a generator needs a little oil, but only a little, and usually it needs that little fairly frequently. Two or three drops is enough for a dose, but a big supply at infrequent intervals is not by any means equivalent to a proper oiling at proper intervals of time.

Next in rules should be "suspect the generator last of all." First make sure of the state of the battery. Second, make sure of the tightness of all wire connections. Third, test for broken wire. Fourth, see that the switches are operating properly and are not broken or loose. Fifth (only after the first four are made sure), see if the cut-out is misbehaving, and then sixth and last, there may be something the matter with the generator, though the chances still will be that something has been overlooked in the first four examinations.

All a generator or starting motor needs is to have the commutator cleaned once in a while and the brushes reset or renewed, but this last is not a job for any man who is totally ignorant of electrical machines.

The main reason for the reliability of the modern generators and motors is their increased simplicity and much better protection against dirt and moisture. The modern system of insulating by impregnation under heavy pressure and considerable heat has almost made impossible any internal leaks in armature or other windings, and materials have now been found to support the arduous conditions of service of the brushes. Commutator construction has also been improved, this being a purely mechanical problem.

On the electrical side, the methods for regulating the current are, on the whole, simpler and more effective. For one thing, such an enormous amount of data is now available that it is easy to determine the output which is necessary for a car of given size. Then, too, the special points of one or another system

have been discovered to have specific applications of especial merit; electrical manufacturers have found out how best to meet required conditions of weight, size, cost, etc.

As an example of the sort of problem which has been brought to a less unsettled state, it is found that the current required for lighting a small car is almost as great as for the largest, while the cur-

rent needed for cranking is much greater with the larger engine. Thus to make a single-unit generator and starting motor is much easier for small cars, as the motor part can be small, the generator part needing to be practically of the same power as that needed for a large car.

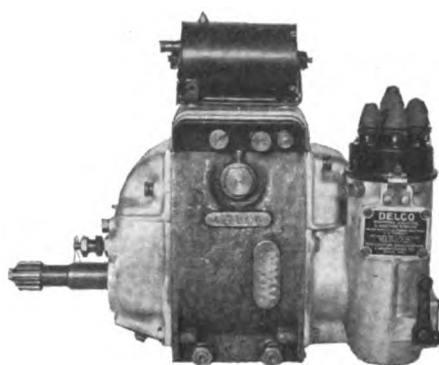
At one time it was thought that the system of regulation adopted must needs be such that the output of the generator could be set to suit the different conditions of winter and summer, town and country driving. Now, however, the manufacturers have found it is best to provide machines which can care for conditions of the heaviest demand and to provide some safeguard which will prevent overcharging the battery. Just as the gasoline engine has been made and proportioned so that there is no need to shift gears for an ordinary hill, so has the generator been developed till there is no need to regulate for long hours of darkness.

There is hardly a machine left in which there is any adjustment available except to an expert on that type of machine who might change the characteristics by changing an internal resistance coil or a brush adjustment.

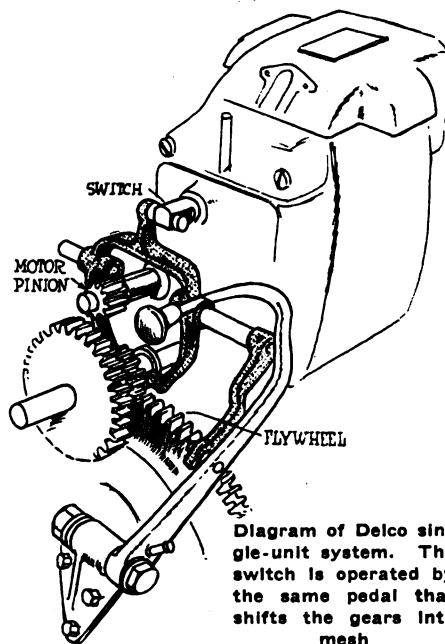
When the generator is running fast enough to create a voltage in excess of the battery an automatic cut-out makes connection and allows the generator to start charging. This is a feature of practically every system in the world.

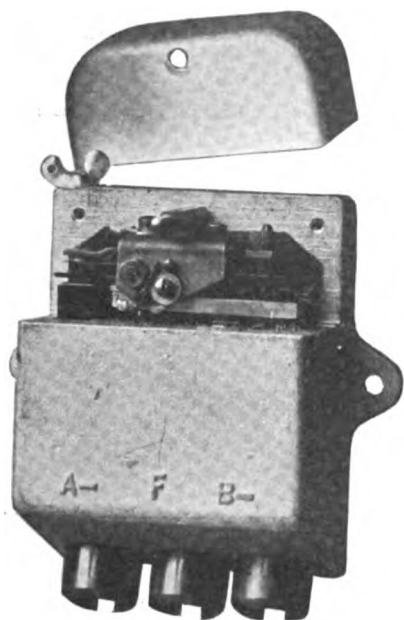
When the generator speeds up its output would be too great if there were not means for counteracting the effect of the speed. To do this the magnetic field in which the armature rotates has to be decreased in strength by some automatic method which will decrease the field proportionately as the speed increases. It is to do this efficiently that has been the main problem on the electrical side of generator design.

There are three main systems. First let it be explained that dynamos and electric motors are very much the same.



Delco lighting, starting and ignition unit





Westinghouse controller box containing voltage regulating vibrator

There are two or more magnetic poles creating between them a magnetic "field," and in this the armature rotates. The armature has a series of short loops of wire wound on it and it is the twisting of these around in the magnetic field that causes current to be generated in them.

Originally the first dynamos had permanent magnets which gave a constant field, that is, a degree of magnetism which did not vary. Then the amount of current produced was roughly proportional to the speed at which the armature was spun. Then soft iron was substituted for the permanent magnets and the current from the armature was taken around coils on the iron, thus making electric magnets instead of the permanent ones. With this arrangement the magnets get stronger as the armature is spun faster, but the strength of the magnets also depends upon the amount of electricity being used in the outside circuit—lamps or what not.

When the current is taken from one of the armature terminals round the field magnet coils and then round the outer circuit and then back to the other armature terminals, we have a series-wound machine. Such is the electrical layout of almost all electric motors, but of very few dynamos.

With a series-wound dynamo the output is very unstable, as changes in the outside circuit affect the voltage and the current. Practically speaking, a series dynamo is good only for use where the speed is constant and the resistance of the circuit also constant.

Since the resistance of a circuit is hardly ever constant, there was developed shunt winding. In this, the current from the armature has two paths offered it. One is around the field mag-

net coils only and then back to the armature. When this is the case the current divides in proportion to the resistance of the field coils and the other circuit, we can take a big current in the outer circuit without forcing up the current in the field coils.

Next came the discovery that the best effect of all was obtainable by a combination of shunt and series. For the main magnetization of the field magnets the shunt winding is responsible, but just a few twists around the magnets are made with the outer circuit, series fashion, so that when a very big current is wanted the magnets get the benefit of a little extra excitation and so strengthen the field.

The dynamo last described is called a compound-wound machine and the simplest form of automobile generator is a compound-wound one but with the series portion coiled the opposite way. The effect of this is that when the current in the outer circuit gets too large the series coils on the magnets oppose the magnetising force created by the shunt coils. In other words, a plain shunt-wound dynamo would produce more and more as it speeded up and putting on the reversed series coils has the effect of neutralizing increased speed by cutting down the magnetism.

The next system to be developed makes use of a quite different principle. Suppose a two-pole dynamo and suppose that it is a 6-volt machine. Then, brush A may have a potential of -3 and brush B of 3. at the intermediate points the potential will be 0. Now as soon as the armature begins to spin it distorts the magnetic lines of force passing from one pole to another. If the brushes stay still the field distorts still more, till we reach a condition where brushes placed half-way between the main brushes would no longer be on the neutral line, so there would be a difference of potential between them, and if we connect them together by a wire we shall find a current flows in it, though the main current is all the time coming from the main brushes A and M.

This current will be of a strength which depends upon the amount of distortion of the magnetic field and so is roughly in proportion to the speed, so the intermediate brushes are linked into the shunt winding of the main brushes but in the opposite direction, so that again we effect a reduction of magnetic strength as the speed increases.

In practice usually only three brushes are used, the connections being such that the current from the third brush helps the main current at low speed and opposes it at high speed.

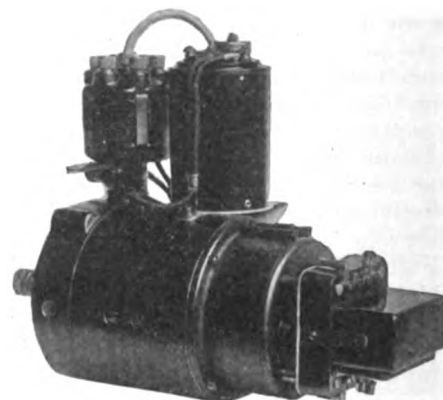
But if the speed is such that the neutral line is distorted and takes up a place like that shown in the left hand diagram of Fig 4, then current from C begins. This current is taken to the

middle of the shunt coil and opposes the main current flowing therein. It is as though air was being blown through a pipe from one end to the other and a back draught was introduced at the middle.

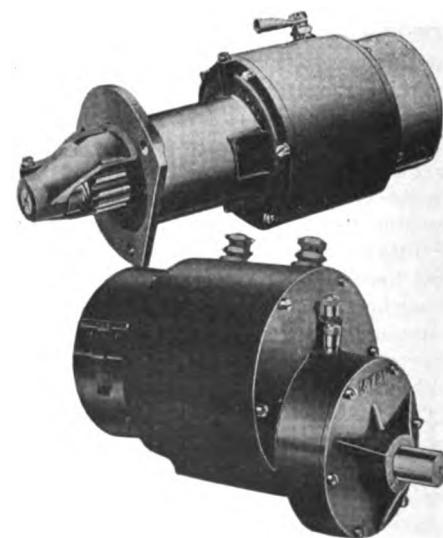
This system of regulation, called the third brush system, is used extensively and has many variations. The description given is only an outline of the main principle. Both this system and the first named, reversed series system, are known as "inherent" regulation, because the regulation has no connection with the outer circuit but is all within the dynamo.

There are two other systems for regulating output, the bucking coil and the vibrator systems. Bucking coil regulation is the same as the original reversed series, but with a refinement in that the current in the reversed series coil is controlled more delicately. Current coming from the brushes divides and part goes through the reversed series coil while part goes through the a coil of iron wire, and when the current is small nearly all of it goes through the iron, since the coil is of much lower resistance than the reversed series coil.

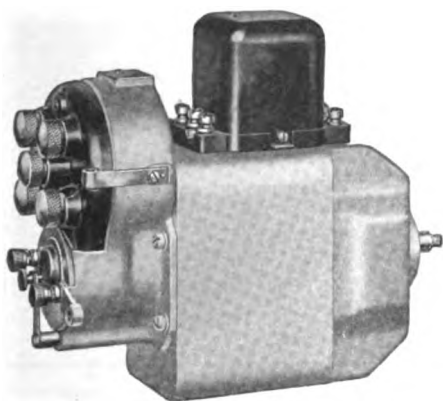
But iron wire gets hot if too much



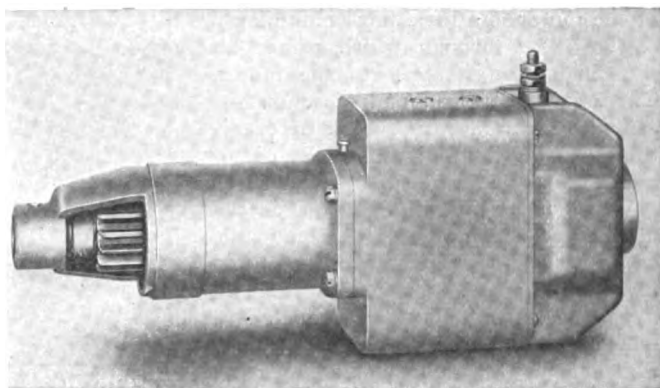
Remy generator unit of the 1916 pattern. A very compact machine



Two types of Remy starting motor; a Bendix pinion design and a motor with intermediate reduction gearing



Left—Gray & Davis generator and ignition unit with regulating vibrator in box on top of field magnets. Below—Same machine minus ignition unit. Right—Gray & Davis starting motor with Bendix pinion



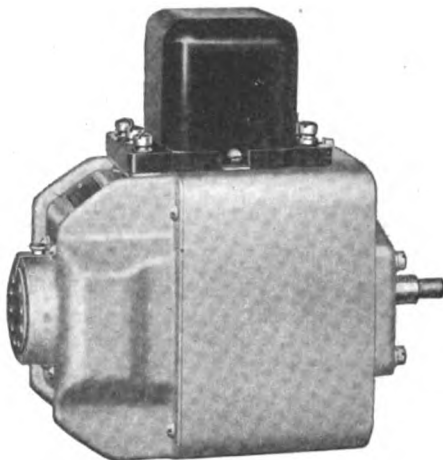
current is sent through it, and when it gets hot its resistance increases. Thus as soon as the current gets strong the coil gets to have more resistance than the series coil, so the current starts to flow strongly in the latter and so puts this reversed series coil into operation and cuts down the magnetism. This is a very simple system and is used a good deal by manufacturers.

Vibrator control is not so easy to understand, but it is being used more widely this year than ever before, having the advantage of lightness. It depends upon the principle that a shunt winding of a particular amount of resistance suits a particular speed of armature. If we could increase the shunt resistance as the speed rises we could keep the current constant. The vibrator control consists of a spring reed with a contact on the end, much like a cut-out contact but lighter and there is a little magnet which will pull the contacts apart when the current in its winding is strong enough.

Directly these contacts are pulled apart current through the shunt winding has all of it to go through a resistance and thus its force is reduced. When this happens, the magnetism drops at once, the current drops correspondingly, and the little magnet lets go again, whereupon the contacts again meet, the current takes the easy path, and the whole process is repeated. This repetition takes place very rapidly, so rapidly that the eye cannot detect the vibration of the reed.

The vibrator system can be varied a good deal in its connections, but however it may be arranged its principle remains unaltered. At present there are several kinds of vibrator control generators with different characteristics, but with such minute detail we need hardly trouble in a general review of this character.

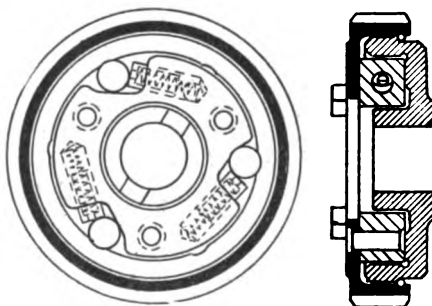
That any one system of control is better than another would be hard to say. The whole subject is a matter of give and take; some manufacturers consider they can obtain the best results with one sort of regulation, other makers prefer other systems. In practice, so far as the owner is concerned, there is very little to choose, since all are reliable and



all are perfectly easy to keep in order by the simple process of not interfering with them.

Characteristics of All Makes in Detail

Making a variety of patterns, the most popular Westinghouse type for 1916 is the one which uses the vibrator system of control, this machine having a practically constant voltage whether the battery be connected or not. The diagram, Fig. 6, is practically that of the Westinghouse control. The generator is usually a four-pole machine. If for current supply only, the generator is round and has all four poles wound, but if it combines the ignition coil it is rectangular with all windings contained in the upper part and the armature at the bottom. Various sizes are made to suit different



Sectional view of roller clutch used on armature drive in Delco single-unit equipment

cars, but the construction is similar in all.

Single-unit Westinghouse systems are made for some special purposes and these operate at 12 volts, but the most usual two-unit systems are all 6 volt.

The Westinghouse company favors the single-wire principle in which the frame of the car is used as the return for each circuit, and all machines are made for use with single wire only.

During the past year development has been almost all in mechanical matters connected with the manufacture of the machines; for instance, a much more extended use is now being made of laminations. The field magnets for the generators in many sizes are made up of stampings of sheet iron instead of from castings or forgings, this being the preferred method both from electrical and mechanical viewpoints, but it has taken some time to lay down the necessary plant to take care of the present large output. Commutator and brushes are extra large and are designed to give several years of service without renewal.

The regulator requires no attention except at long intervals. It is provided with a voltage regulating screw, which can be used by the factory in setting the machine to produce the required characteristic curve. For the motor generator and for some special types of two-unit installations the Westinghouse company also makes use of the inherent system of regulation and of the bucking coil system, but the vibrator is far the most popular this year.

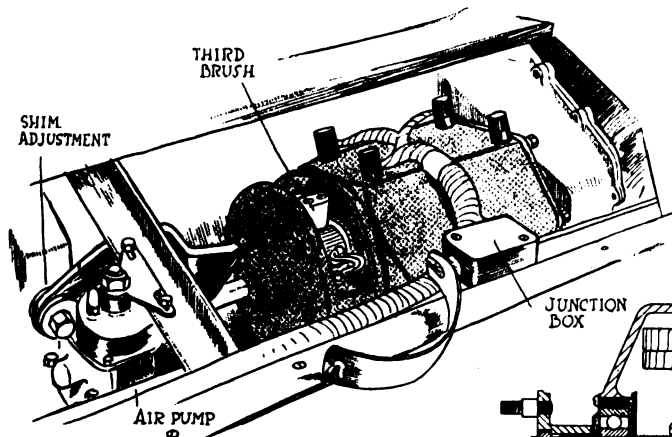
Westinghouse starting motors are supplied in several shapes and sizes for different requirements and for use with either the Bendix pinion engagement for the flywheel or a similar pinion with magnetic control. The Bendix is the most popular, though the magnetic shift is being used for a few high-priced cars, owing to the fact that it needs but the depression of a button, a much heavier switch action being needed for the other.

The magnetic shift motor has an armature capable of moving longitudinally and there is a simple pinion on the flywheel end; this normally overhangs the flywheel gear and has helical teeth, as has the flywheel ring gear. At the front end

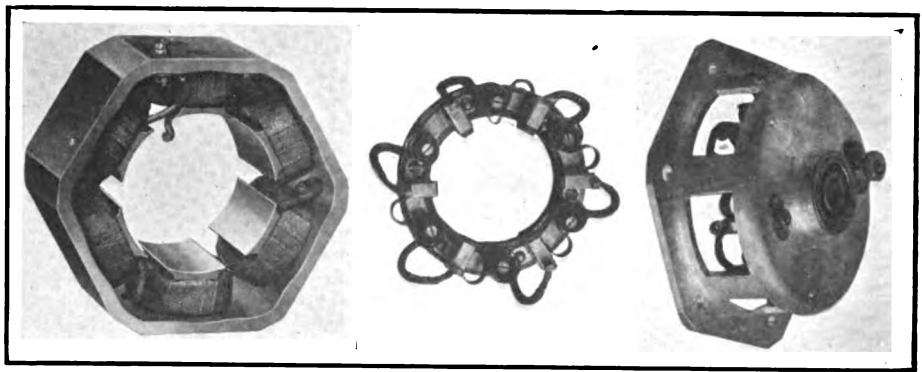
of the motor is a little box containing a coil of wire through which passes all the current on its way to the motor. There is a soft iron end piece on the armature shaft a spring back of everything keeping the pinion normally out of mesh with the flywheel.

When current is switched on, as the pinion starts to move the current in the end coil sucks the armature forward and meshes the gears. As soon as the motor reaches a certain speed, which is a trifle above cranking speed, the back current generated within the motor greatly reduces the power of the suck on the armature and the spring breaks the pinion out of mesh automatically. The helical teeth make for instant engagement and assist disengagement, since the flywheel tends to throw out the pinion. Further, if the pinion should fail to engage and start to spin, the back current prevents the engagement taking place. Either the pinion slips in without a sound or nothing happens, but in practice it is rarely that engagement fails.

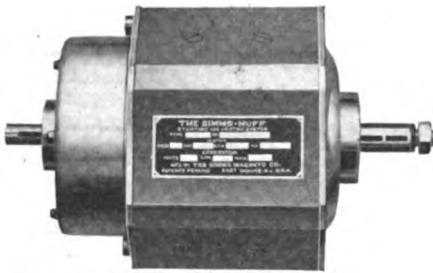
The Delco system is usually a single unit, but the name is a misnomer, for the single Delco apparatus would be described more correctly as a compound system. The main advantage of the two-unit system is that the armature of the generator can be geared to suit the crankshaft speed so that it runs normally at the most efficient rate, which is far less than the rate necessary for starting when the machine is used as a motor, with a constant ratio between armature and crankshaft the armature has to be larger than necessary for generation in order to get enough starting torque. The Delco machine has a single armature with a pinion on the rear end and a drive connection on the front end, but inside the front end there is a roller clutch so that the armature can overrun the engine; if the engine stops the armature can spin on till its own small friction brings it to rest.



Dyneto single unit as applied to Franklin car. It can be seen that there are three brushes and that the wiring connections are simple and accessible. As this machine needs but a single drive connection to the crankshaft, the free end of the armature spindle is available for driving the tire pump



Details of magnet windings and brush gear of Simms-Huff single-unit machine



Simms-Huff single unit which is driven as a generator at one end and drives as a motor for starting from the other

Thus, when current from the battery is turned into the armature, it can spin freely without affecting the crankshaft of the engine. When in use as a generator the machine operates quite like any single-unit type with inherent regulation; it is but little larger and but little heavier. To use it as a motor for cranking there is a duplex intermediate pinion which can be slid mechanically, like a transmission gear, and this engages simultaneously with the flywheel ring gear and the armature pinion. By an ingenious switch combination the action of depressing the pedal that slides the gear also operates the switch, so meshing is performed and current turned on by one movement.

The effect of using the intermediate

gearing, which, as the sketch shows, is in itself a reduction gear, is to give the armature a very high cranking speed, and this is highly desirable from the electrical viewpoint.

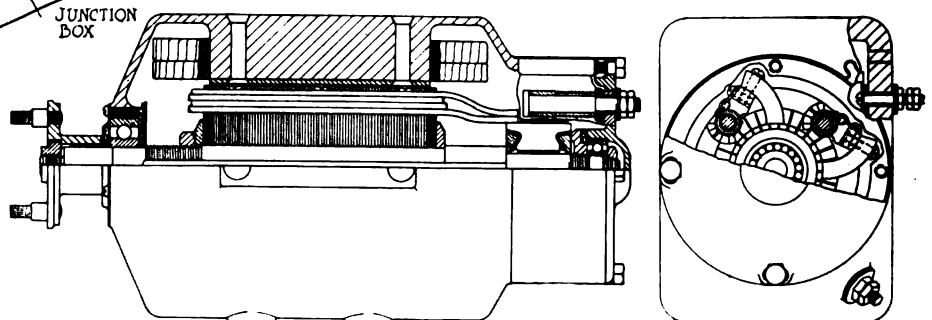
Improvements in the Delco system have been progressive, but have not affected the principle, nor have they altered in their external appearance very much.

Early in the present year the Delco two-unit system appeared, this being made to suit a particular car which was not readily adaptable to the usual single unit. This is to be employed on more than one 1916 car, but the single machine remains the Delco standard.

The Remy for 1916

The principal Remy system for 1916 will consist of a unit generator and ignition system, with a separate starting motor. The generator is regulated by a vibrator, but this is arranged so as to control the current output instead of controlling the voltage. Should the current rise above a predetermined point, the magnetic action of the vibrator introduces resistance and reduces the current instantaneously; then as the vibrator lets go again the current rises, only to be cut once more as the vibrator is again pulled open.

The action is extremely rapid and the fluctuating current produced has the same effect as a steady current. It is steady to all intents and purposes, the variations being infinitely more rapid than can be detected by any recording instrument. Of course, the voltage varies in just the same way with the other method for linking in the vibrator, the average being steady in just the same manner. The only difference which af-



fects the user is that the current controller type, like the Remy generator, cannot be used without the battery in circuit, as it is the battery which controls and restrains the voltage.

With the Remy arrangement there is a four-pole field magnet, with all poles wound, and three brushes are employed.

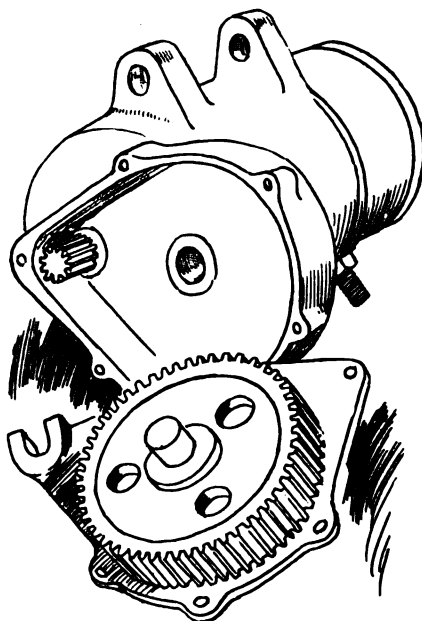
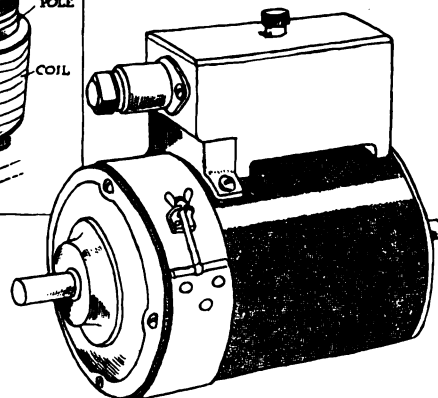
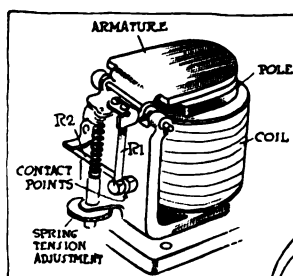
Externally the generator is compact, the vibrator and the cut-out being housed in a small box which is screwed to the generator base, the ignition distributor is mounted on the other end of the machine, and the ignition coil stands on a pedestal on top of the field magnets. The system of control allows a high output from a small machine, so the new Remy is light as well as compact.

For the Remy starting motor the Bendix pinion is the standard form of coupling to the flywheel, and the motor itself is a substantial four-pole machine. The commutator and brushes have been constructed with the intention that they shall operate without needing attention during the life of the car and they are certainly of extremely generous proportions.

For 1916 the electrical system of the Gray & Davis machines has not been altered, but substantial changes in the mechanical detail has enabled the weight to be reduced by almost one third. This reduction is mainly owing to the adoption of a four-pole machine of the roll frame type with pressed steel end caps. In addition to this saving of weight, reliability has been improved by giving great attention to the mounting of the bearings, which are each provided with a large oil container and efficient means for excluding dust or dirt. Also the accessibility of the brushes has been improved so that by sliding off one side cover both brushes are laid bare for examination.

Both double- and single-unit Gray & Davis systems are made, the latter being used for small engines and the former for larger types, and a feature is that the machines are designed to operate at a rather lower speed than usual. The generator is controlled by a vibrator linked in so as to control the voltage of the current supplied and this vibrator, together with the automatic cut-out, is

Bijur generator with voltage control mounted on it in sealed box. Also details of voltage controlling vibrator R1 and R2, being the two blades which allow the contacts to vibrate in two directions



The intermediate reduction gearing used on the Wagner starting motor fitted to Studebaker cars

mounted in a neat case that attaches directly to the generator itself. For the starting motor of the two-unit system the Bendix pinion is the preferred drive.

The main changes for the coming year in the Bijur system are that the weight has been reduced and the efficiency increased, the main principle remaining unchanged. Both constant-current type generators with inherent regulation and generators with vibrator voltage regulation are made, and the latter type has a special feature which has now been in use for some time. This is the use of a vibrating reed which can vibrate in two directions. Not only does the blade vibrate up and down, as it has to do in order to make and break the contacts,

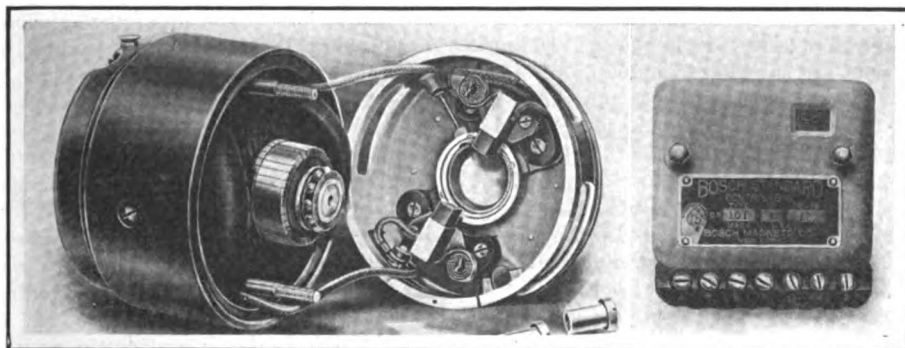
but it is flexibly supported so that it can shake sideways also. The purpose of this is to allow the contact points to meet in all sorts of relative positions instead of always square together, the idea being that this spreads the slight wear and prevents any danger of pitting.

The saving of weight has been brought about by using seamless steel tube to make the outer shell of the machines, the pole pieces being screwed on after the windings are all in place. This makes the generators and motors of neat exterior appearance and is frequently of assistance in fitting to an engine. Accessibility is well cared for, though the cut-out and voltage regulator on that type of generator are sealed up in a case which is attached to the generator shell. Should any trouble be traced to this portion of the equipment it can be removed as a unit without touching any wires, and replaced with another, the regulator base being of standardized form, and the makers will attend to the faulty apparatus if returned with the seal unbroken.

Made by the Splitdorf Electrical Co., the Aplco machines are of both single and duplex type. The motor generator has been developed to a high pitch of perfection and is found on one car in an almost unique position, this being alongside the gearset. When acting as a generator this machine operates at 6 volts and is thus usable in connection with the preferred 6-volt lamp equipment. When acting as a motor the connections are such that 12 volts are supplied from the battery and the starting torque thereby enhanced.

Regulation is by a compound winding with reversed series coils and the arrangement is such that both series and shunt windings are used for the starting current. As a single-unit machine operating on two voltages it is necessary to have an automatic cut-out, and this is part of the equipment.

For 1916 there will be available four Dyneto systems, two of the single-unit type and two of the double-unit. The manufacturers express strong preference for the single-unit, believing that its simplicity, which is very great, overcomes



Details of brush gear and external view of the control box used with the new Bosch Standard generator set

any other advantages which may belong to the two-unit system. Regulation of output is by compound wiring with reversed series coils and the voltage is 12. There are no automatic cut-outs so the battery drives the gasoline engine automatically if the latter should stall, recommencing generation directly the engine picks up again. Changes for the coming year have been quite small and center mainly upon means for attaching the single-unit machines, which have been improved so that the fitting to a variety of different engines is facilitated.

Geared with the crankshaft at from $2\frac{1}{2}$ to 3 to 1, the starting torque developed is large and cranks the engine at a rapid rate. No attention whatever is needed beyond oiling and occasional adjustment of the chain when this form of drive is used, and it is the recommended drive.

Known perhaps best of all by reason of the enormous number of systems fitted to Overland and Chevrolet cars, the keynote of Auto-Lite two-unit equipments has been simplicity. For generator control the reversed series winding is employed, this reducing the mechanical attachments to a simple cut-out of ordinary design.

The Auto-Lite generator is of very distinctive design, having magnets shaped like those of a magneto with the winding coil concentrated upon the arch of the horseshoe. In the Auto-Lite factory there is an immense press plant for cutting out and shaping parts of sheet metal, and the field magnets are made up of laminations like the armature.

No new models are announced for next year, the machines produced twelve months ago being continued. Generators of similar design are made in several sizes and there are several models of starting motor to suit different applications.

Two sizes of single-unit motor-generator make up the Disco line at present, but it is expected that a two-unit system will be announced shortly, the company considering that both types will be permanent. Rather an unusual feature for a single-unit machine is the use of a vibrator form of controller which restricts the current output at high speeds and is, of course, cut out entirely when the machine operates as a motor. The Disco company draws particular attention to the brush gear which is very accessible for examination, while the brushes can be removed for the purpose of cleaning the commutator at the rare intervals when such attention becomes necessary.

The only flywheel at present standardized as regular equipment on any well-known car is the U. S. L., which was one of the first systems to be produced. For 1916 the system has been improved in detail quite considerably by a large reduction in the number of parts and simplification of detail. In this machine the

armature forms the flywheel of the gasoline engine and it is surrounded by the field coils which are stationary.

Regulation is on the inherent principle and is so arranged that the maximum charging current occurs at a low engine speed, the rate of charge falling off as the speed rises. A special switch is provided by which the current can be cut off altogether for long, high-speed runs to prevent the battery receiving an overcharge.

An especial improvement for 1916 is the provision of an electrically-operated relay switch for starting. All switches, fuses and connections are now concentrated upon the cowl board attachment and pressing a small button sends a small current through a relay coil which then operates a powerful magnetic switch and throws on the full starting current. The new device not only removes the necessity for a foot-actuated switch, but overcomes the danger of burning the switch contacts by reason of the instantaneous action of the magnetic switch.

Both single- and double-unit Allis-Chalmers systems are made, a vibrating reed current controller being employed for both types, and 1916 changes have been mainly along the line of improved mechanical detail and reduced weight. Greater accessibility has been secured through changes in the brush holder and commutator design and weight reduced from 15 to 17 per cent by refinements which permit reduction of waste material.

For detail equipment there is a new cowlboard panel upon which all the switches and the ammeter are grouped and this panel also carries every wire necessary except the main leads to battery and lamps. Thus wiring is simplified and the ease of fitting enhanced, while reliability is increased. All the connections to outer circuits are made in the fuse and terminal compartment wherein each connection is clearly marked and tracing any wire consequently made perfectly easy.

Another improved detail is the starting switch which is foot-operated. The contacts are heavier and yet the whole part is lighter, and additional protection against ingress of dirt or water is given by a tubular cap which covers the plunger.

Wagner starting equipments are not made in standard form but are designed to suit the needs of manufacturers and may vary in detail accordingly. Only two-unit systems are made, however, this being practically the only limitation.

An almost unique feature of one of the best known Wagner outfits is found in the starting motor used on the Studebaker car, as this has a double-reduction gear. Made integrally with the starting motor in a case containing a pair of steel gears giving a reduction of about 8 to 1, and it is to the spindle of the large gear that the engine drive is connected. This

double reduction permits the use of a very high speed, small and light motor.

As the Bosch system just introduced was described last week in full, there is no need to repeat the account here. The new set is called the Bosch "Standard" and consists of generator, motor and switch unit with a box containing the automatic cut-out separate. Regulation is by ballast coil or hot wire controller and the special features are light weight combined with neat design and fine workmanship.

So far no new models of the Leece-Neville system have been announced, the standard equipment being that as fitted to the Haynes car. This is a two-unit type, the generator having inherent regulation. The use of a 12-volt potential is now rather unusual with a two-unit system, but the Leece-Neville company believes that it is possible to obtain higher efficiency from both generator and motor with this voltage, so it has been the standard employed.

A feature of the equipment is the use of a target instead of an ammeter, this showing successive indicator tablets bearing the words "charging" and "off," which show whether the generator is or is not in circuit.

The unique feature of the Simms-Huff system is that it is a single-unit with two connections to the engine. Arranged to be driven by belt or any other approved method, it operates as a generator with inherent regulation, charging at 6 volts. When operated as a motor, a 12-volt current is used and an over-running clutch is employed to prevent interference between one drive and the other. Having the ability to operate at a high speed for starting, the weight of the unit is not great, in fact, it is extremely small, it being stated that a machine weighing but 30 lb. can exert a starting torque of 24 lb. The brush gear is of ingenious design, only one wire being used to make connection. Being hexagonal in shape, the unit is also short, and its compactness allows it to be fitted in a very confined space.

To Institute Gasoline Suits

AUSTIN, TEX., Nov. 22—Attorney-General B. F. Looney and his staff or assistants have about finished making an exhaustive investigation of the gasoline situation in Texas and other states. It is unofficially stated that as a result of the investigations the Attorney-General's department, on behalf of the state, will file suits soon against certain refining concerns and dealers for alleged violations of the anti-trust law. Only a few days ago the price of gasoline was raised in Dallas from 17 cents to 19 cents per gal., while at that very time it was selling for 16 cents per gal. in Austin. It is alleged that Dallas is nearer the source of supply and that the product should be selling lower than in Austin.

Farmack Car at \$885 Has Overhead Camshaft

**New Car Built by New Concern Has All
Valve Mechanism on Detachable
Cylinder Head Driven
by Chain**

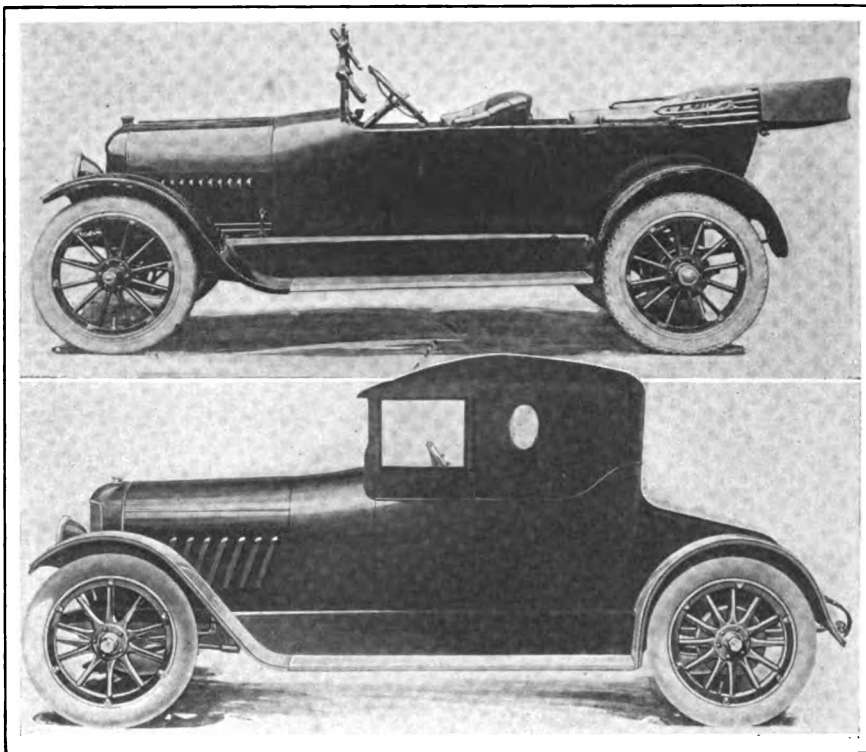
A NEW car placed on the market by a new company is the Farmack, manufactured by the Farmack Motor Car Corp., Chicago, which is headed by A. J. Farmack. The car sells for \$855 with five-passenger or roadster body and for \$1,155 as a cabriolet, the chassis being the same in all. The motor is a four, $3\frac{1}{2} \times 5$ in.

The chief characteristic of the car is the motor, which has its valves in the head operated by an overhead camshaft, the cams acting directly on the ends of the valve stems. The camshaft is chain driven, two chains being employed. The lower chain forms a triangular drive, taking in the magneto and an idler, while the second chain runs direct from the idler to the camshaft. A separate chain drives the lighting generator. Connection between the camshaft and its sprocket is through a tooth clutch having teeth of such fineness as to permit adjustment to one-tenth of the width of a gear tooth. The crankshaft runs in two bronze-backed babbitt bearings. Lubrication is by splash with pump circulation. An oil lead runs to the camshaft, which is flooded with oil, and the overflow goes to the splash troughs under the connecting rods. Cooling is by thermo-syphon and starting-lighting by a Willard two-unit system.

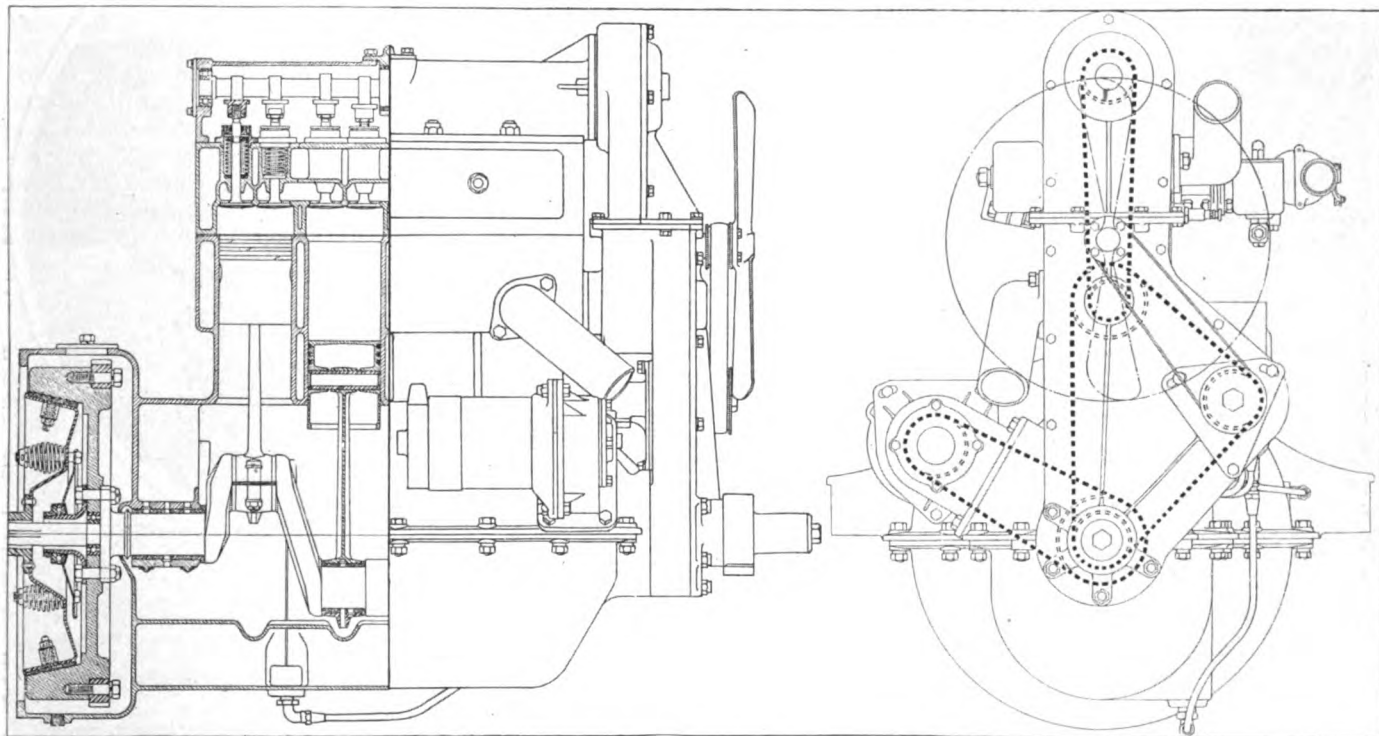
The transmission system includes a cone clutch, three-speed gearset and enclosed propeller shaft with universal directly back of the gearset. The rear axle is of the floating type and is mounted on roller bearings. Drive is taken

through the springs, which are three-quarter elliptics.

Tires are 33 x 4 front and rear, the rear being non-skids. The wheelbase is 112 in. Bodies are built with smooth, flush exterior lines; the front of the radiator is rounded and the fenders are domed. A cowl tank carries the fuel, which is fed to the carburetor by gravity.



The new Farmack touring car and roadster are mounted on the same chassis with 112-in. wheelbase and 33 x 4 tires, non-skids in the rear. The gasoline tank is concealed in the cowl



The motor has the entire valve mechanism on the detachable cylinder head where it runs in a flood of oil. The chain drive is clearly shown. A fine adjustment is provided in the camshaft drive. Cylinders are integral with the upper half of crankcase. The cams act directly on the valve stems

Trend Toward Pressed-on Solid Tire Opens a Wider Field for the Garageman and the Dealer

Expensive Equipment Needed But Outlay Should Bring Good Return — Hard Rubber Base Tires Increase

THE solid tire field affords particular opportunities to garagemen and also to dealers because of the work involved in changing a solid tire on a heavy motor truck. At present one of the most important trends in the solid tire business is that toward the use of the pressed-on tire in preference to the demountable tire.

In our larger cities the pressed-on solid tire is gaining, whereas, in the smaller outlying cities and towns the demountable tire has the following. The reason is: To remove a pressed-on tire from a truck wheel or put one on a wheel requires a hydraulic press that costs between \$500 and \$700. This is considerable of an outlay to the dealer for the amount of work he may get. To make it a little easier some of the tire companies are assisting the dealer by selling these presses at the rate of \$100 down and \$100 per year until paid for, on the condition that the dealer uses the press only in

connection with the make of tire manufactured by that company.

To start with, this narrows very materially the possible field of the dealer, but the tire maker can scarcely be blamed for wanting to push his own tires. There is a field for the garageman or dealer who wants to invest in one of these presses. The use of motor trucks is gradually increasing and is going to continue to increase, so that if present business would not warrant installing such a press the time will soon come when it will be a good investment. The amount of time required to take a tire off or put one on with this press depends on the individual cases. Sometimes it is done in 40 min. and other times it takes several hours.

In small cities and towns the demountable solid tire is looked to to continue in use for some time. From its very nature it can be removed from the wheel and a new one fitted without the truck

owner having to take it to a garage. Unfortunately it is more expensive than the pressed-on tire, due to the several forged and rolled steel parts used with it. Practically all of the solid tire makers are continuing their demountable types, but the number produced is on the wane.

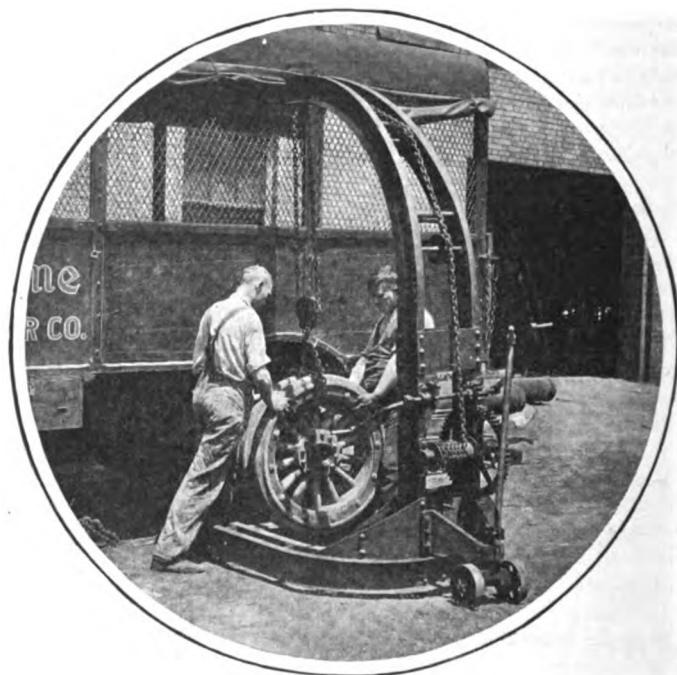
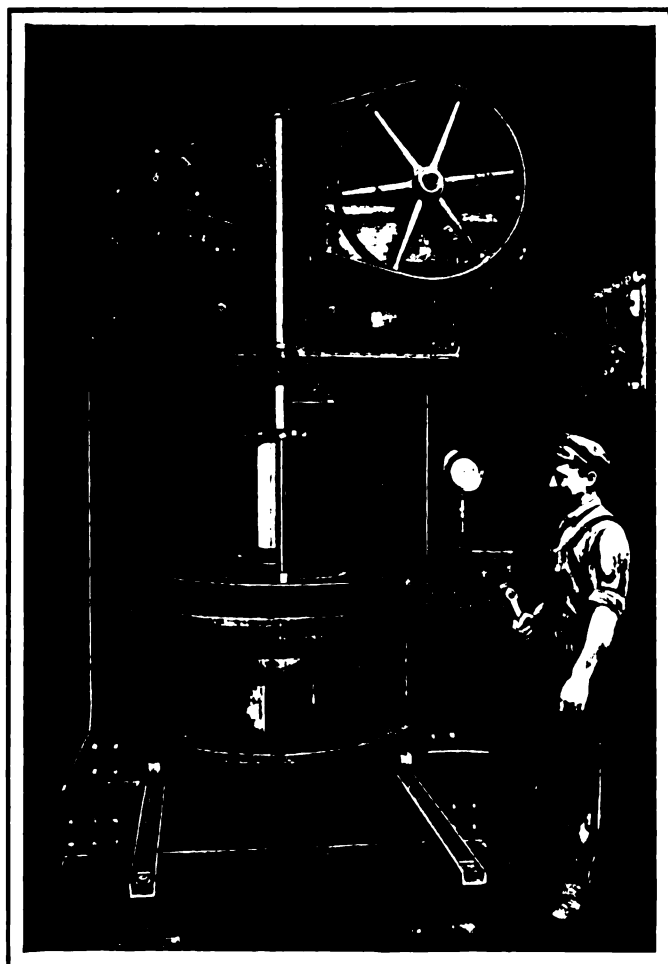
Put On in Layers

During the past year several movements have been exhibiting themselves in the solid tire field. What is known as the hard-rubber base tire has gained over other types. This tire is built onto the rim in the tire factory and cannot be separated from it. The surface of the rim is cut with grooves, undercut notches or in other ways so that the hard rubber base gets a firm anchorage into it.

In manufacture, this rubber base is applied in some factories in layers just as bandage is wrapped on the finger. The base is relatively thin, perhaps not one-tenth the radial thickness of the tire. On top of this part is built the regular rubber part of the tire, of softer rubber to afford the desired resiliency.

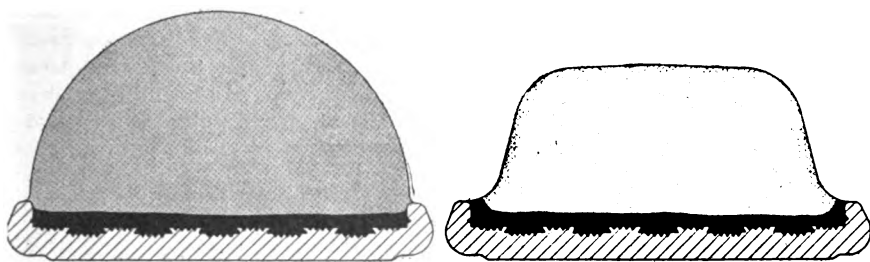
This part in some factories is built up just as a bandage is wound on a finger until the desired thickness is obtained. When done the tire is trimmed to shape and then vulcanized. Thus the metal rim is a built-in part of the tire.

Some of the concerns building this type of tire are Goodrich, Firestone,

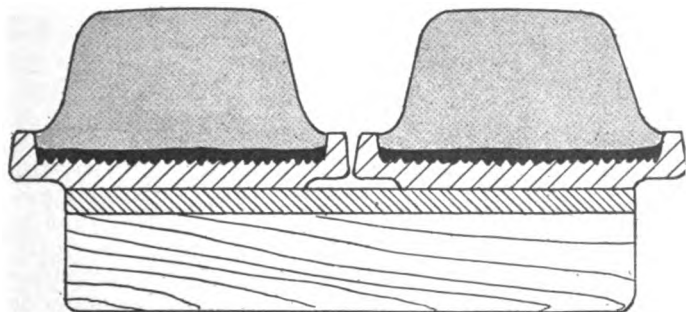


The crane shown herewith is a necessary piece of equipment where the removal and replacement of pressed-on solid tires is made a business. This is used to remove and replace truck wheels complete.

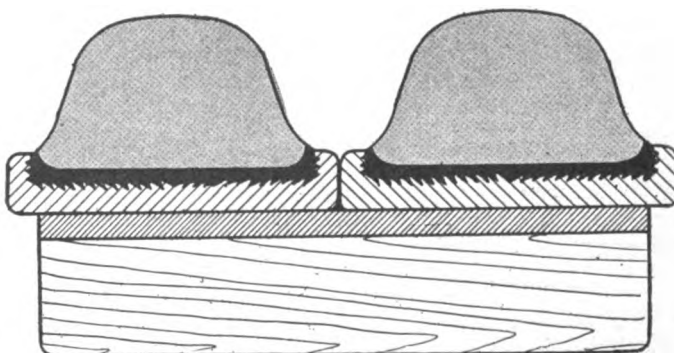
The removal and application of pressed-on solid tires requires a hydraulic press like that shown at the left; this is used by the Firestone Tire & Rubber Co. Such a press costs between \$500 and \$700, though some tire makers are assisting garagemen and dealers by selling presses at the rate of \$100 down and \$100 a year until paid for.



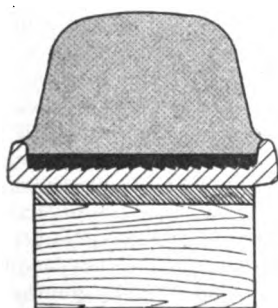
Alternative sections of solid commercial vehicle tires supplied by the Hood Rubber Co., Watertown, Mass. Both are of the hard rubber base type, the left section showing the European type and the right the American type



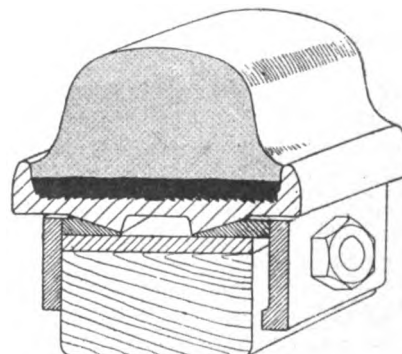
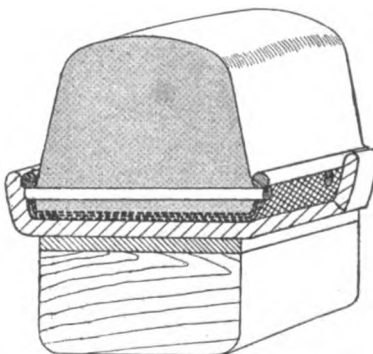
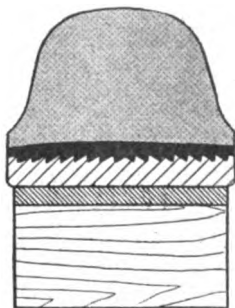
Goodyear hard rubber base pressed-on solid tire



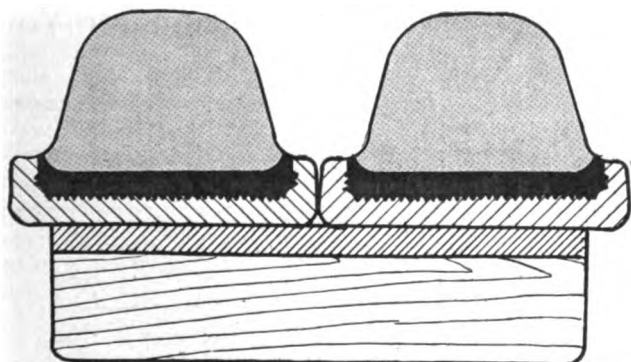
Gibney hard rubber base pressed-on type, twin mounting



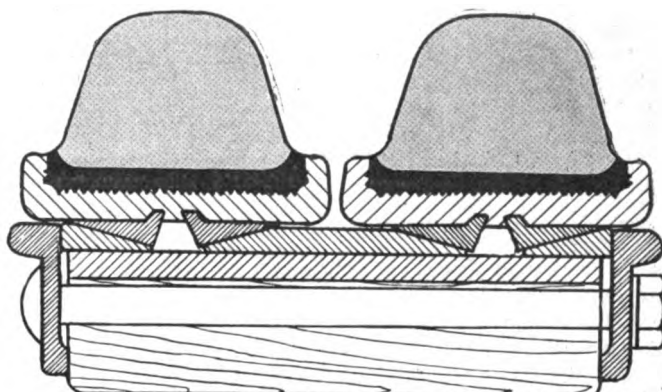
Firestone hard base pressed-on, European section at right



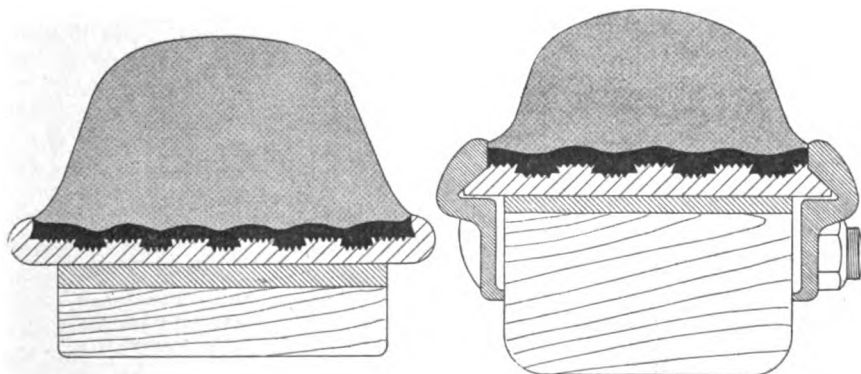
Firestone Wired-on tire and Firestone demountable type



Kelly-Springfield hard base pressed-on type



Kelly-Springfield dual type demountable tires



The method of anchoring the tread to the hard rubber base is distinctive in the Goodrich solid tire. The left section is styled the De Luxe deep-section type and the right section shows the standard type tire of the demountable model

Goodyear, United States, Republic, Kelly-Springfield, Gibney, Swinehart and Hood.

There are other makes of solid tires, such as the side-wire tire, built by Firestone especially for the smaller sizes. This is not manufactured into the rim as is the hard-rubber-base type, but is afterwards attached to the rim as follows: Into the base of the tire are placed stout cross wires at frequent intervals. When the tire is placed on a channel rim it is held in place by two circumferential wires, one at each side of the tire, these wires resting upon the ends of the cross wires, by virtue of which the tire is retained on the rim.

Swinehart manufactures what is called a soft-base tire with cross wires for holding it in the channel rim.

To Reduce Tire Sizes

An important movement in solid tires is that of endeavoring to reduce the number of sizes to fourteen if possible. For several years tire makers, in connection with the Society of Automobile Engineers, have been working on this problem and today it looks as if the following will be the eventual sizes for solid tires:

Diameters—34, 36 and 40. In any of these diameters these are the widths—2½, 3, 3½, 4, 5, 6 and 7.

The majority of the tire and truck manufacturers prefer that only the 36- and 40-in. sizes be recognized as standard, as they claim 80 and possibly 90 per cent of all solid tires used at present are of these two sizes. There are, however, several makers of small capacity trucks, 1,000 to 1,500 lbs., who are fitting 34-in. sizes and are today making strong arguments to have the 34-in. size made a standard. They claim that the 36-in. size often gives a vehicle with too high a loading platform, as many users of this type of vehicle have low loading platforms.

Need for Standardization

These three sizes will be a big improvement as compared with a time ago, when solids were made in 32-, 34-, 36-, 38-, 40- and 42-in. sizes, making in all 42 different sizes. Today there are over 150 cities in the country with 25 or more motor trucks and the tire depots in these cities in attempting to give the best possible tire service have to carry many slow-moving sizes, which will have to be done for a few years yet, but which work will eventually be much simplified by settling on perhaps two or three different diameters and as many sectional sizes.

During the year Goodrich has been promulgating its now policy with regard to single and dual tires for heavier truck work. Today Goodrich is recommending a 7-in. single in preference to 4-in. duals; 6-in. singles in preference to 3½-

in. duals, and 5-in. singles in preference to 3-in. duals.

The arguments are that these singles give better results than the corresponding duals in that often on the road one of the duals has to take the entire weight of load on that wheel and that as it is not designed to take the entire load it is naturally overloaded and perhaps permanently injured by this frequent caring for the entire load weight on the wheel. With singles this is not the case.

Higher Section Is Popular

Another Goodrich movement of the year is the introduction of the De Luxe type of solid tire in both single and duals. The De Luxe is a higher section tire, one designed after the higher-section tires used in Europe, although the Goodrich uses a quite different contour from the European makers. These De Luxes are much thicker radially than other Goodrich solids. On 5-in. sizes they are ¾ in. thicker, and on 6- and 7-in. sizes are 1 in. thicker. Greater resiliency is claimed as well as longer life and greater load-carrying capacity. It has been designed for extra heavy duty and is recommended as an oversize with the same sectional width. The carrying capacity per tire is 500 lbs. greater.

Firestone has recently introduced what is known as the Giant single solid tire, which is made either 8 or 12 in. wide. The extra amount of rubber in this tire is claimed to make it oversize equipment for 6-in. duals and equal equipment for 7-in. duals. The tread has three evenly-spaced circumferential grooves in it.

Iowa Plates Last 3 Years

DUBUQUE, IA., Nov. 22—The new motor car registration law in the State of Iowa will go into effect Jan. 1, 1916. It provides for number plates which will

last three years, though there is an annual tax. The fees for registration have not been changed, but under the new law all fees are due Jan. 1 and a penalty of 10 per cent will be added if not paid by April 1 and 5 per cent additional for each month thereafter. Motor vehicles are subject to lien for all unpaid fees.

To Standardize Sled Tracks

SPOKANE, WASH., Nov. 22—According to the Washington Automobile Chamber of Commerce, the average cost of altering a bob sled from narrow tread to standard width is \$10, and the Chamber is advocating that all sleds be so altered as a means to increase the use of motor cars during the winter months. At present, most sleds operate on a narrow tread, and it is impossible to drive a standard tread motor car in the tracks. It is expected that if the standardization of sled tracks bears fruit farmers can be induced to use their motor cars the year around.

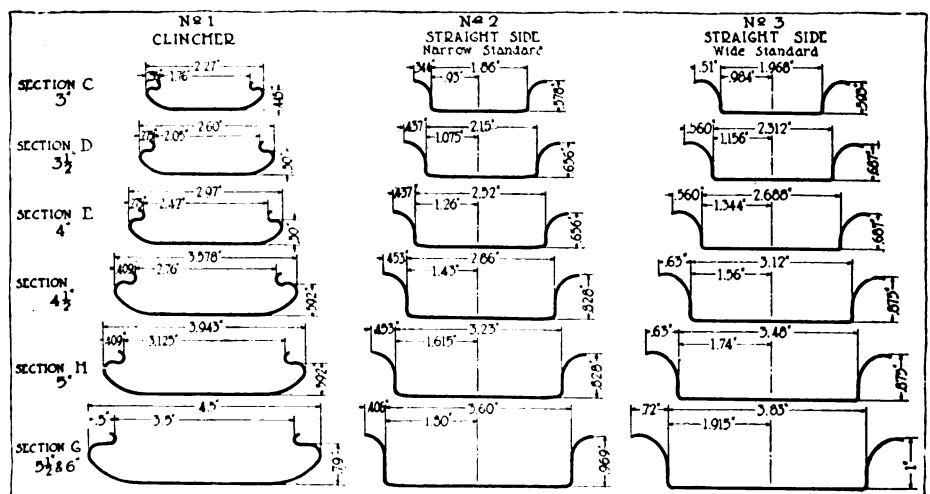
Short Measures Cause Trouble

COLUMBUS, O., Nov. 22—Vigorous steps are being taken by Thomas L. Calvert, chief of the dairy and food department of the Ohio Agricultural Commission to stop the practice of giving short measure in the sale of gasoline. The inspection is in answer to numerous complaints of owners, who claim that many small garages and storekeepers are not giving full measure. The law provides for a fine of \$500 and six months in jail upon conviction.

Business System for You

Page 6

Standard Pneumatic Tire Rim Sections



These are the standard rim sections for pneumatic tires of the clincher and straight-side type as adopted by the Clincher Automobile Tire Manufacturers Association, Cleveland. This body numbers in its membership 19 of the largest tire manufacturers

More Service for Less Money Quite Possible

Service Is on the Wrong Basis if It Is Made up of Free Parts and Labor Instead of Proper Components

By Ray W. Sherman

AS REILLY and Tommy Trumbull finished the descent of the long winding road that led down into Hill Valley and as they rolled up to Chester Bement's garage door—which was the end of the hill—they were just in time to take the place of another man, whose Sennett touring car rolled away in the opposite direction. As the Sennett owner disappeared in the distance he opened his cut-out and gave a few barks, as if he had a grudge against all the inhabitants of the valley and were taking it out on the atmosphere.

Bement was still standing in the door watching the disappearing car as Tommy silently and gradually applied the brake and interrupted Bement's reverie with a "Hello, Chester!"

The Man With a Come Back

"Oh—Hello!" exclaimed the Hill Valley Sennett subdealer, as he came out of his still spell and manufactured a smile of greeting.

"Yes, hello!" said Reilly. "You stand there like a wooden Indian. What's the idea? You look as if that man who went down the road was your only customer and was never coming back."

"He's not my only customer," retorted Bement, "but I wish he never would come back."

"But will he?" inquired Tommy with a smile. A smile was one of the big assets of the Reilly business. Troubles of every kind from any source were always given serious and satisfactory consideration, but the minute a trouble came up it was always met with a smile; thereafter came the serious consideration. And, as in most cases, the smile drew a smile.

A Service Hog

"He will come back," asserted Bement, "not once, but many times. 'Come back' is his middle name. He's a human come back, if there is such a thing. And the car he is driving has more come back to it than any other car I ever sold." Bement grew emphatic. "Reilly, I've made less money on that car than on any other I ever put out in the valley."

"Why? What's the trouble?"

"Trouble?" answered the Hill Valley dealer. "Nothing but trouble all the time. That guy is a service hog. I've had to give him more stuff than a man would expect with an eight thousand dollar limousine. And all he bought was my last year's demonstrator at considerable

off the list because I had driven it all season."

"What makes you give him so much?" asked Tommy.

"I've got to keep him satisfied, haven't I?"

"Yes, but that doesn't necessarily mean that you must give him a new car every spring and keep it running for him the whole season!" said Reilly.

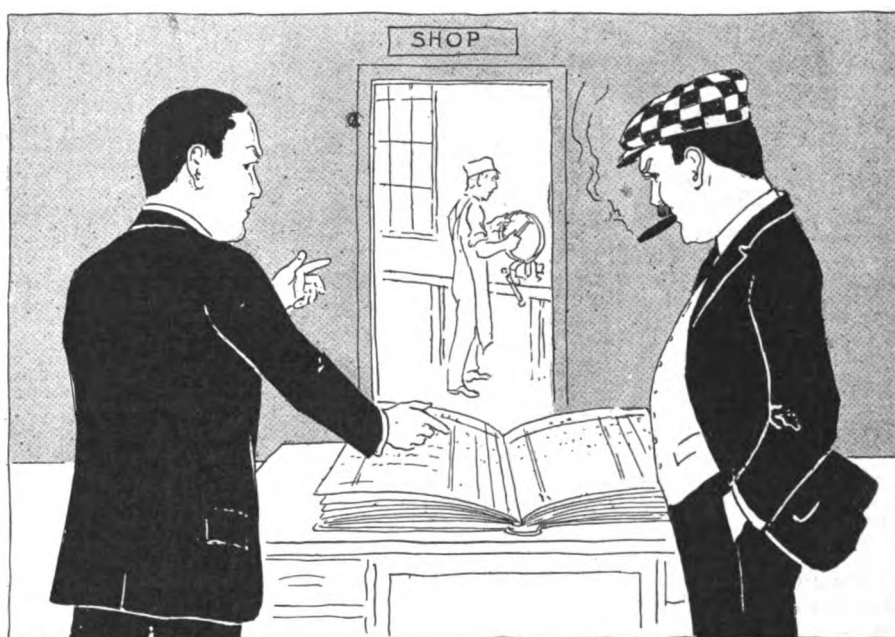
"but in attaining your object you are wrong. Do you know that it is possible for you to give more service for less money and—"

"No, I don't!"

"Well, you can!"

"Show me!" came the Missourian challenge.

"Certainly, I'll show you," volunteered the man from Callawassa. "I can show



"Show him that it costs you a lot of money to run a place to sell him cars and take care of them. Put it right up to him and most men will come across"

"Fine to talk about, but I'd like to see you handle that man," replied Bement in a tone of injury and martyrdom. They went into the office and sat down.

"I know just about the trouble you've had with this fellow," insisted Reilly. "Every dealer in the business has just such customers. And a lot of dealers let the man get away with it the same as you do. Furthermore, Chester, yourself and many other men who sell cars never have found the right basis of service, and you are losing money every year because you are on the wrong track."

"Fine story!" interrupted Bement.

"It is a fine story, Chester!" retorted Reilly. "And once you get the run of the story it will save you money. Let me ask you: Why do you give service?"

"To keep the customer satisfied, to keep up his good opinion of the Sennett car and to make every car in the valley an ad and a lead to future sales."

"So far you're right," added Reilly

you, but I can't save you the money, because it's up to you, absolutely, to make the money or not to make it. Now, this is the idea, Chester. You give service—as does every one else—to keep the car owner satisfied. And you believe that to keep him satisfied you must assent to all his demands and give him nearly everything he asks for.

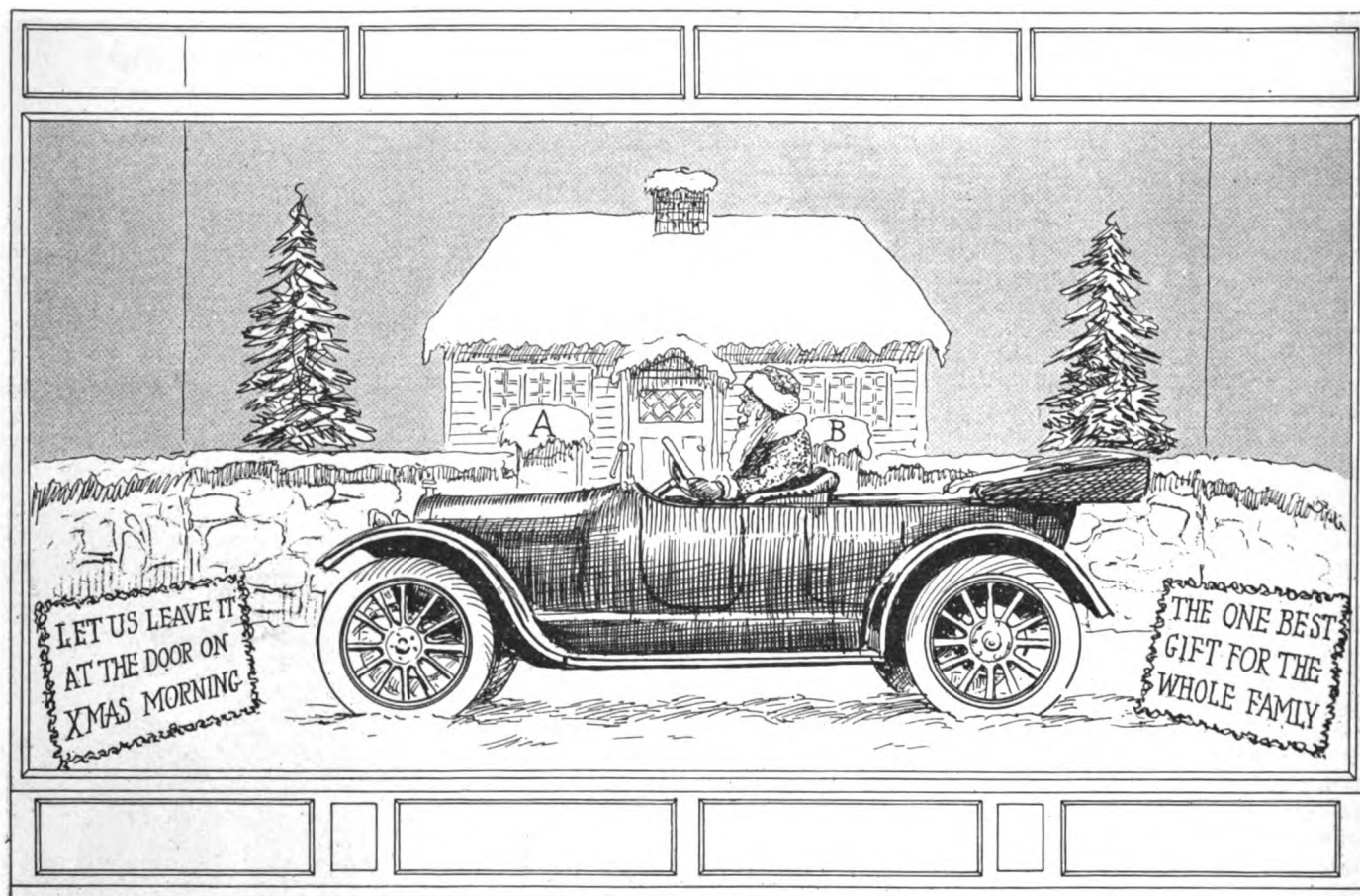
Give! Give! Give!

"Your service consists of greasing his car, adjusting the machinery, changing his tires, donating all sorts of little odds and ends, like cotter pins, nuts and bolts, giving him labor, even giving him a part free or at cost, and it is just a succession of give, give, give. Am I right or wrong?"

"You're right so far, I must admit."

"And you try to keep this expense down. If a man isn't very insistent he doesn't get much. But if he makes a big holler and blusters around he can

Christmas Is at Hand—Make It Help Your Business



TRY THIS WINDOW SET-UP. If possible to have the background painted on canvas, this will be best. If such cannot be done, the background may be made of evergreens. They may be stood along the back in place of the wall, the foreground can be made up to represent a winter road, and at A and B can be placed a couple of gate posts, with, perhaps, a real gate. The path from the gate can curve sharply around to the left, thus indicating that the house is out of sight behind the trees. An enclosed car would add to the wintry effect of the display

get almost anything he wants. Am I right or wrong?"

"That's the kind of man who drove away just as you came in," said Bement.

"Yes," answered Reilly, "and you are giving him the profits of your business—but not service. Just take a look at some other trades and businesses, Chester. See what you get as service, and see how much free materials and labor you get. If your laundry sends out bad work it makes it good, but the most you ask from your laundry is good work, promptly done, promptly collected, promptly delivered and fair charges. Isn't that true?"

"Yes."

"Now, why not the same thing in the automobile business? You sell a man a car and every part of it is covered by the maker's guarantee. If anything breaks and if it is not the fault of the owner the factory will make it good. That doesn't cost you anything. The Sennett factory will even pay for putting the part in.

"Aside from defective parts there are those breakages which are the fault of the owner. You probably have been making good on these—and at your own

expense. Then there are all sorts of little adjustments. You probably make these yourself and it doesn't take but a few minutes and might be legitimately classed as service.

"Then there are all such things as washing and polishing cars, and changing tires, and performing all sorts of labor. It is possible you have thrown in a lot of this expense under the head of service."

"I have for that fellow who just went up the road," lamented Bement.

"But why should you?"

"I couldn't see how I could get out of it," insisted Bement. "He made me do it; I didn't want to do it."

"And you shouldn't do it, either," advised Reilly. "When you sell a car you should get the list, and you should emphasize to the buyer that he is getting value received for every dollar he pays you. After he has gotten this value for his money and comes along and wants something done for nothing, such as changing tires, you should explain to him that you are paying your men so much an hour and that the rent and other expenses of your business make it cost you so much per hour for labor and that

you are donating money out of your own pocket if you do work for nothing.

"If he is a farmer, ask him if he would give you free milk the year around just because you happened to have bought your winter's potatoes from him. If he sells coal, ask him if he would furnish you with free wood just because you had bought your coal from him. Those propositions sound foolish and you wouldn't expect such things under the name of service, but that is exactly what you are doing for your car owner.

"Tell him one of the reasons he should want you to stay in business is so you may be here to act as an expert caretaker of his car. Make your service prompt and your work good, and tell him what you are doing for him in this line. Show him the investment and equipment in your shop, show him your parts stock, and tell him all this expense is for his benefit. Show him that it costs you a lot of good money to run a place to sell him cars and take care of them. Put it right up to him, and most men will come across without a murmur."

"But that fellow who drove away——"

"Forget him until he comes back!"

Dealer's Legal Status

If the Maker of an Accessory Sues Another Maker the Dealer in the "Infringing" Article Can Ask a Bond for His Protection

By George F. Kaiser

THE other day on going into a supply store, where I was known, to purchase a shoe and tube, I was waited on by one of the members of the firm. After the goods were bought and paid for the dealer asked me if I would mind clearing up a little point of law for him. On answering that I would be glad to help him out, if possible, he brought forth a copy of a letter from one of the leading accessory manufacturers in this country, which was in effect a notice to dealers that a suit for a patent infringement had been brought against another manufacturer who made a similar accessory, and a warning that persons selling or using the infringing article would be likewise liable for infringement suits.

The dealer very naturally wanted to know what he should do in this particular case, as he happened to be handling both the accessory made by the manufacturer who had started suit and the manufacturer who was being sued.

As notices of this kind were no doubt spread broadcast throughout the country in this particular case, just as they are in every case of this kind, while the fact that such a suit had been instituted was recorded in the various trade papers, I am giving my answer to the dealer's question in order that Motor World readers may know what their rights are in like circumstances.

Patentee's "Rights" Are Few

As to the rights given to a patentee under the Patent Law, of late years it has come to be a common saying that the only right a patentee has is to start a lawsuit, and this happens to sum up his rights very nicely. A man may have ever so valid a patent on an article, but it will avail him nothing if he does not start suit against those persons who intentionally or unintentionally infringe upon his rights, and in order to adequately protect himself it is often necessary to start a number of lawsuits for infringement, accountings, and asking that certain people be restrained by injunction from substituting their articles when the patented articles are asked for, and the like.

After the patentee has decided that he wishes to start suit against the persons guilty of any of the above practices, and

last, but not least, that he has capital enough to carry the thing through to a successful issue, his rights are fairly well fixed and determined: (1) he may sue the other manufacturer who actually makes the infringing article; (2) he may sue the jobber who distributes the infringing article; (3) he may sue the dealer who retails that article, and (4) he may sue the buyer who uses the article.

Those in the second, third or fourth classes are just as guilty of infringement as those in the first class, and the retail dealers, of course, are included.

Could Collect from Dealer

If the manufacturer who is the complainant should win out in his suits, there is no reason why he should not collect damages from each and every one of the above-mentioned persons.

If, on the other hand, he should lose out in his suits, the result would very likely be that the damages assessed against him would be so heavy that the practical effect would be to put him out of business, unless he were very strong financially, as the manufacturer who is sued, the jobbers and the dealers could all recover their loss of profits, etc., from him in that event.

In order that a retail dealer may properly protect himself in a case where a notice is sent out that an infringement suit has been instituted, he may do one of two things—he may either put the goods aside which it is claimed infringe the other party's patent rights, or he may demand that he be furnished with a bond by the infringing manufacturer, being careful to see that the bond will properly indemnify him for any damages or expenses to which he may be put.

BULK SALES LAW CONSTITUTIONAL

It Voids Sale as Against the Seller's Creditors

THAT the "bulk sales law" of Texas is constitutional was recently decided by the Supreme Court of that state.

As this law affects sales where a dealer buys out at one time another dealer's

entire stock, the decision in that case is naturally of interest.

A man by the name of Sweet was engaged in the implement, vehicle and hardware business and was indebted in various sums to certain creditors. Finally he sold his entire stock of goods in bulk to one of the creditors, who gave the dealer part of the purchase price in cash, part in the form of a promissory note, and further agreed to pay up certain other debts due from him.

One of the creditors who was not included among those mentioned caused a writ of garnishment to be issued against the purchaser of the business, notwithstanding that he in turn had sold the goods which he had purchased from Sweet, and disposed of the proceeds.

Must Make Inquiry

It appeared that under the bulk sales law any sale of a stock of goods not sold in the ordinary course of business should be void as against the seller's creditors, unless the purchaser should make full inquiry as to the names of all the creditors at least 10 days before the sale and obtain from the seller a written and sworn statement regarding his creditors, and further give notice of the sale to the creditors disclosed by the seller.

The court held that, as the above provisions of the law had not been complied with, the sale was accordingly void and that a creditor might recover the amount of his debt against the party who purchased the goods from the dealer, even though they had been subsequently resold.

The court, in its opinion, pointed out that similar decisions had been rendered under like statutes in the courts of Nebraska, Wisconsin, Michigan, Georgia and Washington. (*Owasso Carriage & Sleigh Co. vs. McIntosh & Warren*, 179 S. W. (Texas) 257.)

Must File Owners' Names

A decision of interest to dealers who are doing business under a trade name was recently handed down in Kentucky. It was held that a person carrying on a business under an assumed name, not complying with a state statute which requires that the true names of the parties who are conducting the business be filed in the office of the clerk of the county where the business is being carried on, was not entitled to start a law suit in any court to recover money due for goods sold.

In this particular case suit was brought to recover the sum of \$284 which remained due to the dealer as part of the purchase price of a motor car sold by him. The court held that the dealer could not recover the amount from the purchaser because of his neglect to file the required certificate. (*Hunter vs. Big Four Auto Co.*, 162 Kentucky 778; 173 S. W. 120.)

WIDE-AWAKE MERCHANDISING

CONTENTMENT IS BAR TO PROGRESS

Sales Expert Asks If You Are a Satisfied Man

Are you satisfied with your job?

If you are, D. M. Barrett, Detroit, editor of Salesmanship, says you are a potential hobo, a distant dead line. "You want success," he asserts; "you pray for success; but the test of fitness for success is aggressiveness and initiative.

"You may be very satisfied with what you have now, but if you stay at that figure, your sphere of usefulness is limited. If you are satisfied with what you now have you are a distant dead line, you are a potential hobo. If you have not the moral courage to progress beyond the point to which an employer or an employment has lead you you might as well give up at once all hopes of any substantial success.

Canned Ability Not Valuable

"Your good employer can give you at best his own well established ideas, his valuable training, but the world pays mighty little in wages for canned ability, however excellent the brand. There are millions of machine-made minds and millions of standardized brains. Standardized brains and machine-made minds can be instantly duplicated. The uncommon thing, the thing with a dream of success

within it, is initiative, aggressiveness.

"The moment a man begins to manifest initiative, to show aggressiveness, to think for himself, to create, to originate, that moment a man lifts himself above the rank and file of men and begins to demand and receive attention for himself. He gets out of the rut and begins to grow.

"If you are going to make a success of yourself, you have got to make it out of self. The only things that have ever counted for success have been expressions of self, individuality—and personality.

Winter Advertising Brings Winter Business

Watch the Water In Your Radiator **DON'T LET IT FREEZE UP**

WATCH YOUR STORAGE BATTERY

If you intend to have your car overhauled this winter make a date with Mr. Johnson, our shop foreman, early and we can give you the best of attention.

Bring in Your Vulcanizing Work This Winter and Be All Ready For Spring

TREMAIN & RANKIN

1104 CENTRAL AVENUE. FORT DODGE, IOWA

This is one of the steps that should be taken by all those who have repairshops. Keep the shop busy this winter. Don't let the overhead pile up on you. This was sent out in postal card form

LITCHFIELD GARAGEMAN SENDS OUT THIS LETTER TO HELP BRING IN WINTER BUSINESS

No doubt you know from experience that your storage battery requires very regular attention. If this attention is not given it the results will not only be serious but costly.

Inclosed you will find a storage battery service card which entitles you to free inspection, testing and filling your battery with distilled water every two weeks, regardless of the kind of battery you have. You will notice that the card is so arranged that you will have a complete record of the battery, including the date tested, hydrometer reading and when distilled water was last added.

By the hydrometer reading we know the internal condition of the battery, and to be the most efficient and longest lived, it must be kept fully charged at all times. If after two or three tests have been made, the hydrometer readings show that the battery is not up to the standard, it is then time to look to the generator and make the necessary adjustments to keep the battery fully charged.

The storage battery is perhaps the only part of your car that does not carry some kind of a guarantee. It will depreciate much faster from standing idle than from being in use every day, and unless it is fully charged and kept in a warm place it will freeze very easily. Freezing will break the rubber jars that contain the elements and solution and the battery will be of no further value until the jars have been replaced with new ones and new solution put in. This is a costly operation and should be avoided. The safest and cheapest plan is to store your car in our warm garage or bring your battery to us where it will receive proper care and attention during the winter months.

Yours for Service,
LITCHFIELD AUTO CO.
W. R. Coyne.

Uses Card to Make Sure Batteries Are Cared for

LITCHFIELD AUTO CO.		STORAGE BATTERY SERVICE		Car _____	
Battery Record Card Issued to Mr. _____					
Flashed					
Hydrom. Reading					
Date Tested					
Nov	Dec	Jan	Feb	Mar	April
May	June	July	Aug	Sept	Oct
ALWAYS KEEP THIS CARD IN YOUR CAR.					

This card serves three purposes. It reminds the car owner of the necessity for having his battery inspected and shows the dealer how often the battery was brought to his shop and what was done to it. It also serves as an advertisement for the Litchfield Auto Co., Litchfield, Minn.

As a Matter of Fact....
We have the best facilities backed up with the best Auto Repair Experts. That's why we want your patronage.

HERE'S 3 CENTS READ MY LETTER

Three-cent Check for Readers' Time Gets Results

Paying for the time it takes the prospect to read the follow-up letter is a plan that is being used to advantage by J. H. Grimes, of the Dupligrath Letter & Printing Co., Kansas City. With his letters he is enclosing a check for 3 cents, and the first paragraph says:

"Enclosed please find check for \$.03 in payment for the 30 sec. of time that you will spend reading this letter." The remainder of the letter is right to the point and tells briefly but completely of the Dupligrath letter printing service.

"We have used ordinary advertising letters for some time with fair results," states Grimes. "One day I realized how much more willingly a man sells than buys, and I decided to ask my prospect to s-e-l-l me 30 sec. of his time.

"On the first mailing I sent about 200 letters, and the results have been so gratifying that I expect to mail more



A. J. VETTER, proprietor of the Hayward Garage, Elmira, N. Y., says a thank-you good-bye to customers. It is an effective way to use the waste space on the back of the sign, which on the front bears the garage name and is a bit of merchandising enterprise that costs nothing—but pays

soon. The percentage of direct results has been far above any campaign that I have mailed before.

"Up to date no checks have been cashed and I do not believe that many ever will be cashed. The checks were made out in facsimile form with the prospect's name filled in on a typewriter."

The payment is at the rate of 6 cents a min., \$3.60 an hr., and \$28.80 a day.

TAKE A LOOK AT YOUR TOP SHELF

It May Tell You Something About Your Business

Look at the merchant's top shelves and you nearly know his turnover," suggests a man who has just returned from a tour in the South. He went on to tell of his visit to a little store in Florida.

No goods were displayed in the show windows, because show windows were unnecessary and unknown; board shutters keep out storms and thieves. But this man studied the shelves and counters with his eyes. "What's that? How long has that been there?" he inquired, after he had broken the ice with the proprietor. Stock on counters up front, he found, was comparatively new and usually moving—placed there to save the storekeeper steps. On the shelves, however, going up and back, the dates ran into the presidencies of Taft, Roosevelt and McKinley. "Twenty years," was often the proprietor's answer.

Every store makes a discovery when it does away with the top shelf—with all the shelves that are out of the sales person's reach. And the placing of goods is rudimentary in the art of store arrangement and goods display on which, to an unsuspected extent, rapid turnovers depend.

Interest On That Investment

They tell of a coal dealer who was asked by a friend how business was going with him.

"Fine," he replied. "There has been some competition from a chain of coal yards, but I have no trouble in meeting that. You see, those fellows have to buy land for their yards. I own my place."

The friend asked about the value of his yard. It is worth about thirty thousand dollars, because its location on one of the principal streets.

The coal dealer was mystified by a parting remark which his friend made. Thinking it over, however, he changed his accounting system. Now his costs include a charge of fifteen hundred dollars for the interest on his investment. This was his friend's remark:

"I am thinking of buying a big farm out in this locality. If I do, I'm coming to you for a thirty-thousand-dollar mortgage on it. And I'm not going to pay you any interest on it, either, for I know you'll do as well by me as you do by your own business."

Strong Letter Makes Bid for Winter Business

COLT-STRATTON COMPANY

BROADWAY AT 57TH STREET

NEW YORK

TELEPHONE CIRCLE 1600



COLE MOTOR CAR CO.
INDIANAPOLIS



DODGE BROTHERS
MOTOR CARS

November 20, 1915.

Mr. Ray W. Sherman.
New York, N. Y.

Dear Sir:-

As I understand it, you are using a car which has a better second hand value now than it will have in the spring.

I don't know whether or not we can get together on a trade, but the thought occurs to me that since our present stock of used cars is low enough to permit taking in a few more we may be able to furnish you with one of these fine new Cole Eights on a mighty interesting basis.

Drive by in your car anyhow. A little mutual investigation went hurt either of us.

Cordially yours,

Harry L. Stratton
Vice-President.

HLS:EEG

This letter has merit. It is short, neat, to the point and has pulling power. It brings a somewhat unusual thought to the prospect in a striking way

Know Your Business

Page 6

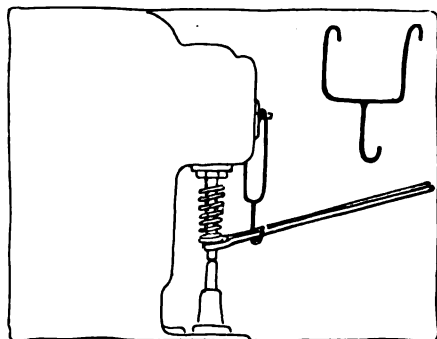
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Valve Remover for Fords

(No. 359)

This valve lifter is especially for Fords and has two pieces; the construction is clearly shown. The advantages claimed for this type are that it is very con-



(No. 359)

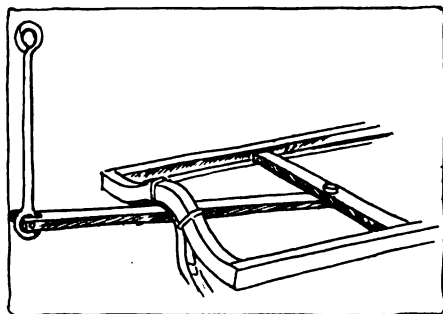
Simple valve tool for Fords

venient to use and that there is little danger of the spring seat slipping out. —L. V. Bertholf, General Auto Garage, Hackensack, N. J.

Raising Rear End of Ford

(No. 360)

The illustration shows an easily made device for holding up the rear of a Ford while work is done on the axle or wheels.



(No. 360)

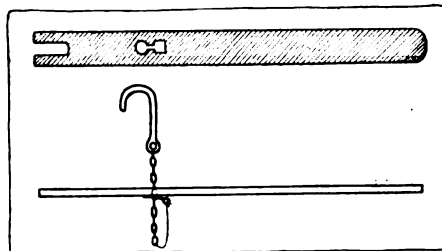
How to hold up Ford rear end

This device has the advantage that it cannot injure the body. It consists of three pieces of heavy bar stock connected as shown. The end piece catches in the frame members, and the weight of the car holds it solidly in place.

Spring Leaf Removes Valves

(No. 361)

A valve remover made of a piece of an old spring leaf and a strip of chain with a hook on the end is shown. Two methods of catching the chain to the leaf may be used; one requires the cutting of a keyhole in the leaf, the chain link catching in the small end of this



(No. 361)

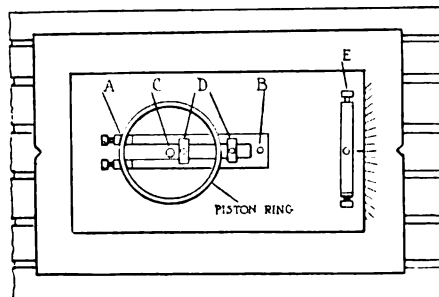
Valve remover made from spring leaf

hole; the other consists in attaching a heavy piece of wire to the end of the chain and passing it through the proper link.

Cutting Joints in Rings

(No. 362)

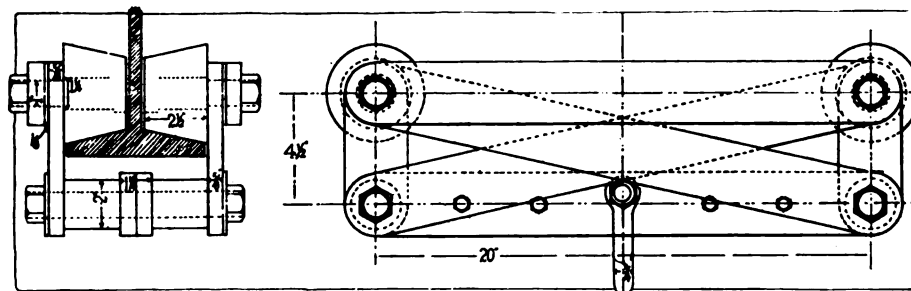
The illustration herewith shows a jig for accurately milling step joints in pis-



(No. 362)

Jig clamp for holding rings while step joints are cut

ton rings, and its construction is such that the sides of the joint are radial. The ring is clamped in position at A by the two screws shown; the member B is slid backward or forward until the ring is concentric with the pivot C and then the clamps D are tightened. Stop screws E limit the arc through which the ring may be rotated and thus determine the width of slot cut. A cutter less than the width of the slot is used and two cuts are made, one with the jig moved all the way to the left and the other with



(No. 364)

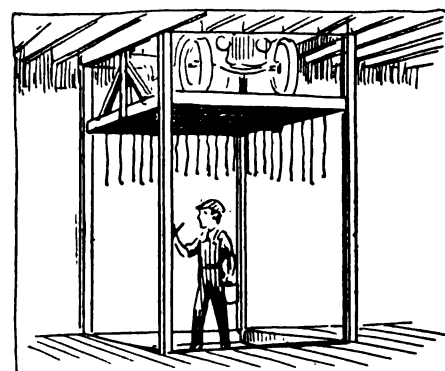
Car built to run on I beam

the jig all the way to the right.—John R. Price, Newark, N. J.

Elevator Danger Signal

(No. 364)

Some garage elevators are constructed without shafts or guides and come to rest directly on the ground floor. To prevent a man being crushed under the elevator as it descends, it is advisable to have an unfailing warning signal, and there is



(No. 363)

Warning ropes on elevator

probably nothing better than a number of lengths of clothesline ropes about 4 ft. long attached to the bottom of the elevator platform at intervals of about 1 ft. If anyone should be standing under the elevator while it was descending he would see or feel these ropes in time to run to safety.—Sims Auto Co., Grand Forks, N. D.

Crane Car for I Beam

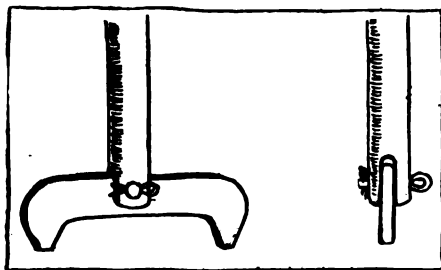
(No. 363)

A traveling car which runs on the lower flanges of an I-beam in the ceiling is an excellent shop device to use in lieu of a traveling crane. There are two pairs of rollers beveled to fit the flange and with the exception of these parts the carrier is constructed of bar stock. When designed for an I-beam with a flange width of 5½ in. it has a capacity of 3½ tons.—R. B. Thrasher, Kahoka, Mo.

Adjustable Valve Tool

(No. 365)

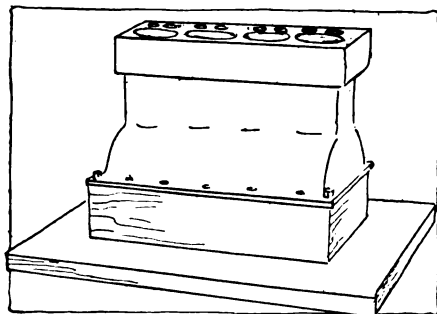
Valve grinders for all valves may be made for use on a single shaft. The part which fits the valve has at its center



(No. 365)

One shaft with several ends will fit all valves

a small hole for cotter-keying to a split shaft.—Frank Campbell, Tenvoorde Garage, St. Cloud, Minn.



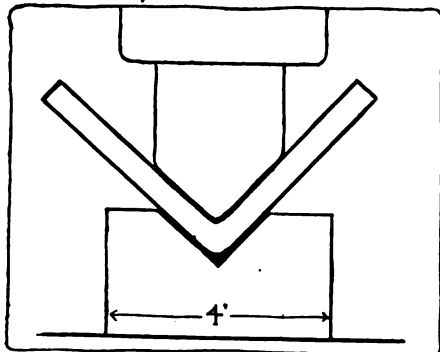
(No. 366)

Stand to which cylinder block is bolted to facilitate reaming

Stand for Ford Cylinders

(No. 366)

The advent of reamers for resurfacing Ford cylinders makes necessary some sort of an arrangement for holding the cylinder block solidly in place while the work is being done. The cylinder block should be raised a few inches off the floor to bring the reamer handle to a convenient height. The small wooden platform illustrated with the box on it to fit the crankcase flange makes a good device for this purpose. The block is bolted down at the four corners and the weight of the mechanic is sufficient to hold the platform steady.



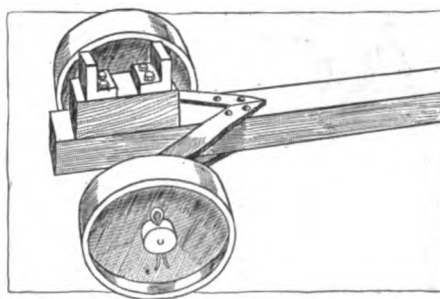
(No. 367)

How angles may be bent in arbor press

Bending Angles in Press

(No. 367)

Bending angles cold can be very easily accomplished by means of an arbor press and two V jaws, as shown.—O. Spitzer,



(No. 368)

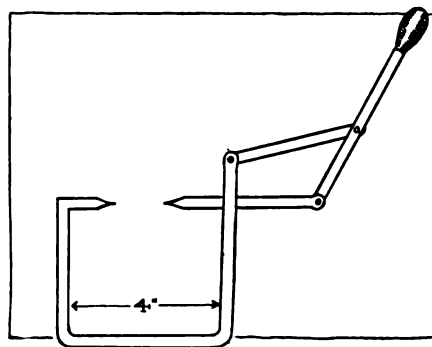
Rugged towing truck for bringing in disabled cars

Prospect Park South Garage, Brooklyn, N. Y.

Towing Truck for Wrecks

(No. 368)

A simple but rugged towing truck of the two-wheel type has a 4 x 4-in. tongue and over the axle is the towing block, to which are attached two angle irons 3½ x 1½ x 1½ in. The wheels are cast iron and fitted with plain bearings, lubricated with grease cups.—M. Gerard, Cissna Park, Ill.



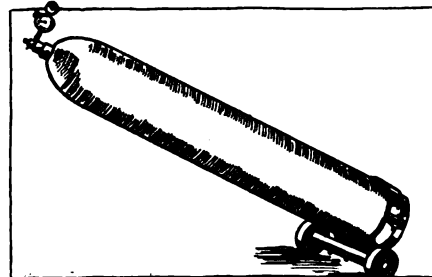
(No. 369)

Quick-acting spring spreader

Quick Spring Spreader

(No. 369)

Herewith is shown a quick-acting spring leaf spreader which may be made out of ordinary bar stock. A pull of the handle serves to force the springs apart.—W. Wood, Packard Motor Car Co., Newark, N. J.



(No. 370)

Simple truck for oxygen tank

Oxygen Tank Truck

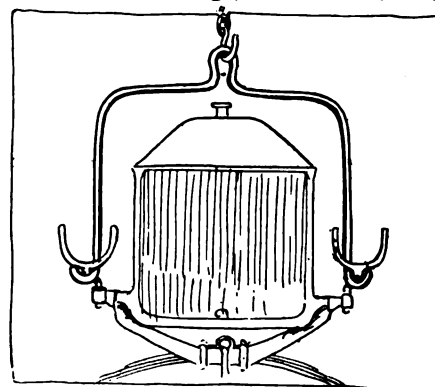
(No. 370)

The oxygen tank may be rendered portable by the clamp and roller attachment shown. When not in use the tank stands on its end and when it is to be moved about it is tilted until the weight is supported by the rollers.

Ford Lifting Tackle

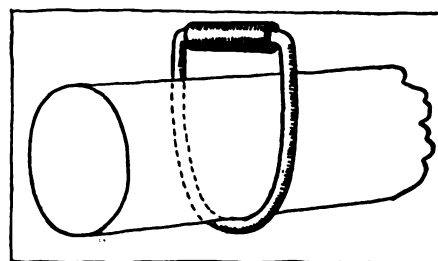
(No. 371)

A double hook, as shown, may be used in raising a car by its lamp brackets while work is done on the wheels, front axle or steering gear. Such a device is particularly applicable to one make of car, such as the Ford.—L. V. Bertholf, Central Auto Garage, Hackensack, N. J.



(No. 371)

Lifting front of Ford by lamp brackets



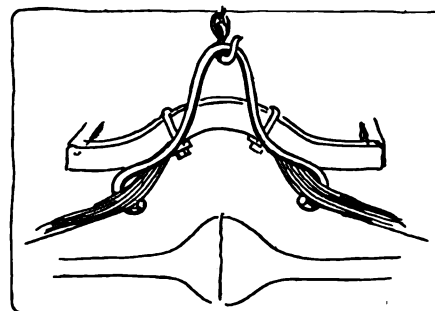
(No. 372)

Wire handle for carrying Prest-O-Lite tanks and similar objects

Prest-O-Lite Handles

(No. 372)

Handles for carrying Prest-O-Lite tanks are easily made out of 3/16-in. iron bent as shown and the ends put inside of ¼-in. pipe.—M. Gerard, Cissna Park, Ill.



(No. 373)

Double hook for raising Ford

Lifting Rear of Ford

(No. 373)

The double hook shown herewith is used for lifting the rear of a Ford. It is made out of an old Ford drive shaft. It has the advantage of being easy to attach and if it is correctly shaped it will not mar the body.—Elmer Johnston, City Garage, Portchester, N. Y.

Start 1916 Right

Page 6

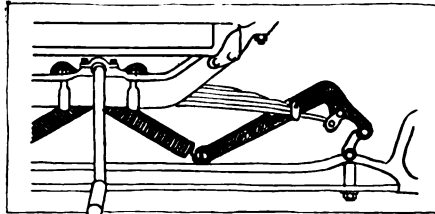


ACCESSORIES & SUPPLIES :

DIXIE SHOCK ABSORBERS

Dixie Mfg. Co., Indianapolis. PRICE, \$10 per set of four. DEALERS, \$4.50 in dozen lots.

This shock absorber is only for Fords and combines a lever and a long coil spring in its construction. The lever is placed between axle and spring end and the load is carried by the long coil spring.

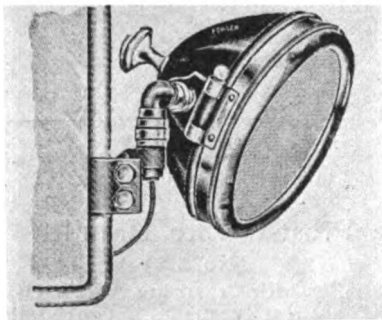


Dixie shock absorbers for Fords

PIONEER SEARCH LIGHT

Pioneer Lamp Co., Chicago. PRICE, \$5.50, \$7.50 and \$10.

Made in three sizes, this light, which clamps to the windshield, may be set at any angle forward or backwards, up or down—its motion is practically unre-



Pioneer search light has universal movement

stricted. The 4½-in. lamp throws its light 200 ft., and the 7½-in., 250 ft. The latter is also equipped with a rear view mirror and sells for \$10.

GARAGE DOOR HANGERS

McKinney Mfg. Co., Pittsburgh.

As the illustration shows, these hangers are for suspending sliding doors. The hangers are adjustable so that any thickness of door may be accommodated.

PROJECTA TOWING TRUCK

Projecta Co., East Milton, Mass. PRICE, \$100.

The Projecta truck is designed for towing at comparatively high speed and is fitted with 30 x 3 pneumatic tires. Its construction is clearly shown.

SIMONS RADIATOR CEMENT

Simons Mfg. Co., Vallejo, Cal. PRICE, 30 cents per box.

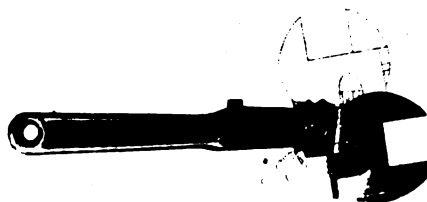
It is claimed that the cement will not only stop small leaks but will also aid in cleaning scale from the radiator. It

is poured into the radiator while the engine is running.

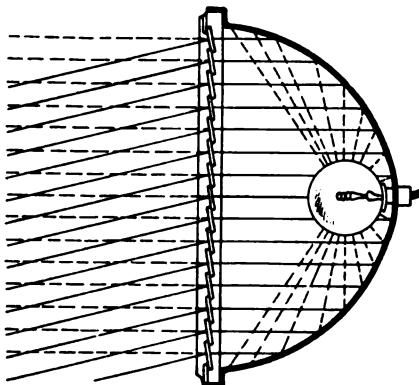
IMPERIAL ANGLE WRENCH

Imperial Tool Co., Bloomington, Ill.

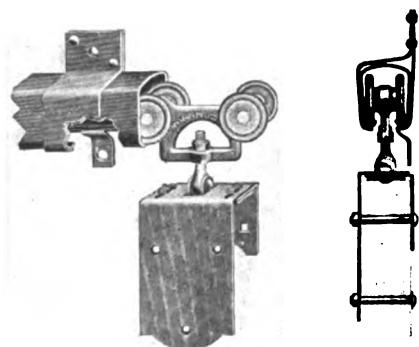
The adjustable jaw will take any tap up to 1¼ in. at eight different angles or the tap may be turned in close quarters by ratcheting the handle in either direction by simply pressing the ratchet button.



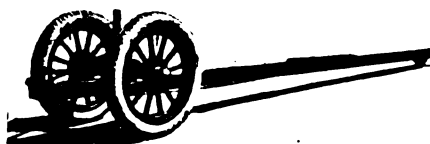
Imperial angle wrench. It has eight positions



Opalite glare reflector throws rays down



McKinney sliding door hangers for garages

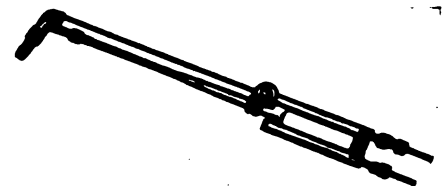


Projecta towing truck for high-speed work

MECO WELDING TORCH

Modern Engineering Co., St. Louis.

A new welding torch has been brought out, known as the type C. It is said to produce a neutral flame of 6,300 deg. Fahr. The tips supplied range from No. 1 to 10 and will do any class of work within the scope of the oxy-acetylene process. A feature claimed for the device is the simplicity with which the cutter is attached to the torch; the neces-



Meco welding torch for all work

sity of removing the hose connections is eliminated. Only two operations are required, as follows: Remove the nut on the oxygen valve and the union nut on the gas conduit, and the torch is ready to receive the cutter. It has a thumb-controlled needle valve, automatic check valve system, and a one-piece handle.

OPALITE GLARE DEFLECTOR

M. & K. Auto Sundries Co., New York. PRICE, \$2 per pair.

A series of Parolin prisms run diagonally across the headlight lens, each prism overlapping the top of the one below it. The prisms are arranged at such an angle that proper deflection and diffusion of the light rays result, thus overcoming glare. The device is made to fit all makes of lamps and may be put in place in a few moments.

Debit. What is it?

Page 6

HERZ PRO-MO-TOR SPARK PLUG

Herz & Co., 245 West 55th street, New York. PRICE, \$1.

The advantages claimed are that the plug is self-cleaning, soot-, water-, dust- and shock-proof. The settling of carbon and oil in the combustion chamber is prevented, it is said, by a propeller-shaped disk which forms the outside electrode. This construction produces a whirling action which keeps the plug chamber clean. The high-tension cable terminal is protected from water and dirt by a rubber cap, which fits over the top of the plug. The hood of the plug is made of stone and has a copper ring fitted to its lower end.

NEW JIFFY JACK

Jiffy Jack Co., Cleveland. PRICE, \$2.50.

The Indestructo is the name of this new rack type jack and it is intended



Kaufmann light for windshield mounting

especially for general work about the garage. The stroke is short, permitting the use of a long handle, and the base is large. Normal capacity is 2,000 lbs., but it may be overloaded to twice this amount. The height is 11½ in. and the lift is 7 in. There is an auxiliary step 7 in. from the base.

ROLLER-SMITH AMMETERS

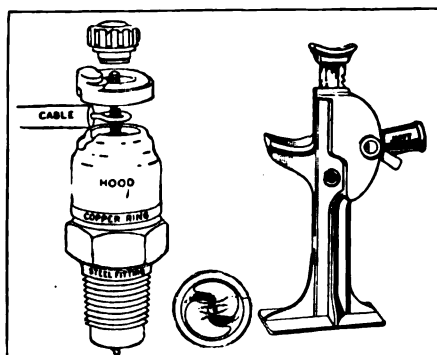
Roller-Smith Co., 203 Broadway, New York. PRICE, \$5.30 to \$7.

Both ammeters and voltmeters are made for dash installation. Case is heavy brass with rubberoid finish, and is dust and moisture proof. Overall diameter, 3½ in.; depth, 2½ in. Almost any range can be obtained.

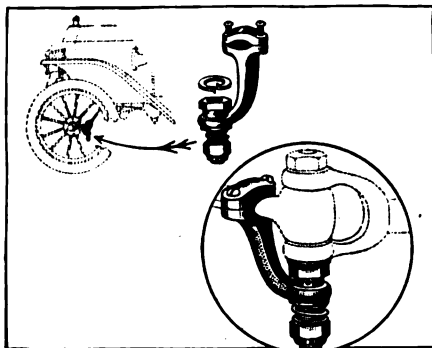
KAUFMANN SPOT LIGHT

Kaufmann-Williams Lamp Co., Santa Ana, Cal. PRICE, \$7.50.

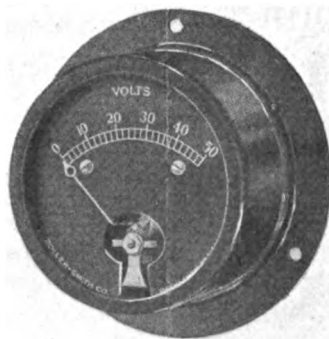
This light is provided with a 6-in. reflector and is designed for mounting on the side of the windshield. It is provided with a universal point which allows movement in any direction, and there is a clamp for fastening it in any position.



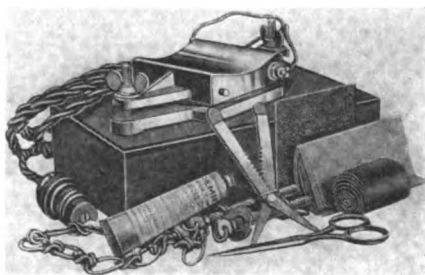
Left—Herz Pro-Mo-Tor spark plug for Fords. Right—Jiffy jack for garage use



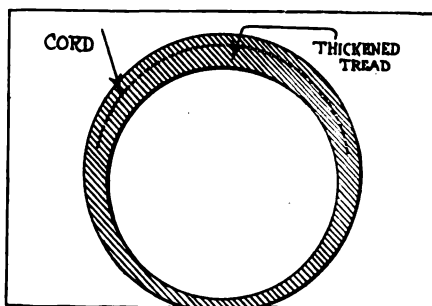
King anti-rattler for tie rods



Roller-Smith voltmeter for dash mounting



Premier electric vulcanizer



Reliance puncture-proof tube

PREMIER ELECTRIC VULCANIZER

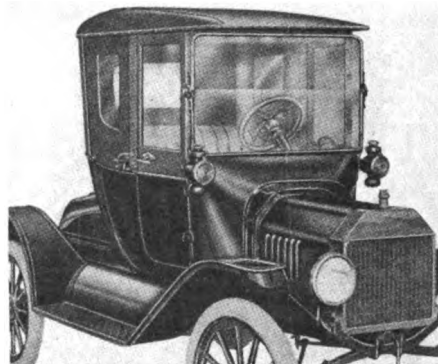
Premier Electric Co., Chicago. PRICE, \$3.50.

Overcuring is rendered impossible with this electric vulcanizer by providing a thermostatic cut-out which prevents the temperature from rising above a certain point. It is adapted for road use and can be operated on the storage battery; another model for garage use is designed for a 110-volt lighting circuit. The weight is 2 lbs. Tools and materials for making all repairs are included in the outfit, which comes in a neat sheet steel box.

KING ANTI-RATTLER

King Specialty Mfg. Co., 207 Washington street, Brookline, Mass. PRICE, per pair for Fords, \$1; for Overlands, \$1.50.

Rattle, due to a loose tie rod, is prevented by attaching a pair of these clamps. No machine work is required, and they may be applied in a few minutes by anyone.



Coupe top for Fords

COUPE TOP FOR FORDS

George White Buggy Co., Rock Island, Ill. PRICE, 1915 or 1916 Fords, \$45; 1913 or 1914 Fords, \$46.

White's All Year Coupe Top is designed exclusively for Ford roadsters, and consists of a mohair top which is made tight where it fastens to the windshield. The glass panels above the doors, the side curtains and the rear surtain are likewise designed to fit so close that no cold air is admitted.

RELIANCE AIR CONTAINER

Reliance A. C. Co., 2 Rector street, New York. PRICE, 30 x 3, \$4.50; 34 x 4, \$8.55; 36 x 4½, \$10.65.

The puncture-proof feature is obtained by so forming the tube that the hole closes as soon as the puncturing instrument is withdrawn. This action is best understood by explaining that after the tube is made it is turned inside out. This brings the thick layer of soft rubber, which was originally outside, inside, and therefore it is under compression. Consequently when a puncture occurs, the rubber immediately expands and fills the hole.

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The Motor World Simplified System of Accounting

Instalment No. 2

THE second instalment of the story of Motor World's simple accounting system appears on page 6 and succeeding pages this week. It takes up the handling of incomes, or earnings.

Every dealer and garageman should follow this series of articles through to the finish. If he needs the system he should do so, and if he now has a satisfactory system he may learn something or may get an idea that is invaluable. Probably every business man can learn something he did not know before about accounting, for this system is described in a very simple manner.

And by all means read page 5. This series of articles constitutes a course in accounting, and you can't afford to miss it.

Buy Right

ONE of the unfortunate features of the handling of accessories by dealers and garagemen is that many of them find themselves stocked up with goods which seem to be unsalable. These include all sorts of things, from rinky-dink attachments to make the car do this or do that to compounds and quack prescriptions that have a bad case of shivers every time they see a blue sky law.

The garageman and dealer has bought unwisely. The question of price does not enter into the situation

at all. He has been "stuck" by a clever salesman or has let his enthusiasm run away with him. In all probability he has bought from a company of which he knows little or nothing and whose product is in the same class.

The garageman and dealer should be careful. He should stick to goods he is pretty sure he can sell—well-advertised goods—and he should not believe too implicitly what the salesman says. The best jobbers in the country and the better manufacturers who sell direct to the dealer know their future depends upon their treatment of the dealer and they act accordingly.

The dealer should investigate before he buys. Tell the seller to "show me." Choose reputable jobbers and manufacturers. Make sure a product is salable, and then don't stock too heavily on the first order. You might better buy one article and be unable to fill the demand for a few days than to have a stock that becomes a liability on the shelves. The maker of products is in business to make money—but so are YOU.

Answer Your Telephone

AT this minute, as you read, how many telephones in the United States do you suppose are ringing insistently while the proprietor or person who should answer them is "waiting till he gets ready" before he takes down the receiver?

This is discourtesy, because it is doing behind the customer's back what would be a shrieking insult if done to his face.

This is poor business, because the owner has hired the telephone to help his business, and by neglecting it he hurts only himself.

This is haughty, last-generation method, for the business man of today succeeds because he "serves"; he is not here to "be served."

The ringing of telephone bells in this manner is a mark of inefficiency and bad judgment in a business.

Pick the Location

THE chain store, be it drug-store, cigar-store, grocery or what-not, counts its success in a large measure due to its location. For months before the chain decides to locate one of its stores in any particular place, it has its trained investigators on the spot examining into the possibilities of business there.

For example, the number of persons passing a given location are counted every hour of the day sometimes for a month. Then these are classified according to their sex, their appearance, their apparent reasons for passing the location and so forth.

With all this data in hand the chain is then able to estimate with almost uncanny accuracy the amount of business it can expect from such a location.

Is there any reason in the world why a man in search of a garage location, or a location for an accessory store could not follow exactly similar methods?

Providence Show Sets Record for Business

Best Ever Staged by Rhode Island Dealers—40,000 Attend—May Make It Two Weeks Next Year

PROVIDENCE, Nov. 20—The Providence show, the fifth annual exhibit under the auspices of the Rhode Island Automobile Dealers Association, came to a close at the State Armory here to-night, and the dealers declare that it was the best show, from a business standpoint, that the association has ever held.

Approximately 40,000 persons attended during the eight days it was in progress, and the dealers assert that more actual sales were made to the people of Providence and vicinity than at any other show ever held.

21,000 the First Night

The official opening was on Friday night, Nov. 12, when 21,000 persons flocked to the armory. This was a day earlier than has been the custom, the primary object being to give the business man two Saturdays in which to look over the cars without the jam of the opening night. It appears from the general sentiment that the new scheme was a success. Officials connected with the show tonight expressed the opinion that next year the show would be extended to two weeks.

The total number of exhibitors at the show was 80; there were 43 different makes of gasoline pleasure cars on exhibit and the total number of pleasure cars shown was 144. The commercial car exhibits numbered 32 and the accessory exhibits 20.

The Providence show in the past has not been a show that could be called a big business proposition, so far as actual sales are concerned. Some sales have been made, but as a matter of fact, the exhibit has been a business developer in the way of uncovering prospects upon which the dealers concentrate their efforts during the winter months.

More Sales Than Ever Before

This year the dealers say they have made more sales than ever before and that they have excellent lists of prospects. This city is the second largest distributing center in New England, Boston having the first call. The territory radiating from Providence extends to New London on the south, and as far as Willimantic and Manchester on the west. On the north the dealers' work covers Bristol county and the Cape Cod district.

The daily paid attendance was 2,800 persons, the admission being 50 cents with the exception of Wednesday, which was Society Day, the price being boosted to \$1, and the income from this source was said to be about \$12,000. The as-

sociation made some money, though the amount is not stated.

The number of square feet of exhibition space was 40,000. The pleasure cars were shown on the main floor and the commercial and accessory departments were in the basement.

The dealers affiliated with the show last year sold 1,747 new cars. While there are no available figures for the total output, persons in a position to know place the aggregate sales of this year close to 2,400 new cars. It is the general opinion that there will be an increase of 20 per cent for the coming year, which indicates a sale of about 2,900 cars for the coming season.

The Providence show is very largely a wholesale proposition. Practically 80 per cent of the business is of a wholesale nature, being handled by the large distributors through their subdealers. Some of the large distributors have as many as 20 dealers scattered throughout the territory.

Primarily Distributors' Show

Ninety per cent of the Providence dealers are wholesalers and the remainder is made up of retailers. The number of subdealers varies from five to forty for some of the distributors, according to the season of the year.

The question of whether a show should be held in the fall or spring is still a matter of dispute by the dealers in this state. The time of the Providence show is fixed by a vote of the association and the fact that it is held in November shows that a majority favor that season of the year. This sentiment, however, is by no means unanimous. There are many contributing causes which influence the members to hold their exhibit at this time of the year, one of them being to bring it ahead of the holidays.

Some of the exhibitors are strong for a show in January and they believe that the Boston show, which comes early in March, is the most ideal arrangement as a strictly business proposition.

One of the most noted improvements in the trade in this section is the sale of enclosed cars with the demountable type playing an important part. During the past 15 months the closed car business has tripled in volume. As a result of the demand for this class of cars the dealers are giving it more attention.

The dealers are also giving more attention to the electric commercial cars. Within the past year there has been a substantial increase in the sale of commercial cars, principally trucks of electric power.

Cut-price dealers have scaled the profits on accessories down so fine that not more than 20 per cent of the garages are carrying a full line of accessories. This field is being left open to the dealers who make a specialty of this class of trade.

The exhibitors were:

Adams & Knight, Mercer; Aetna Bottle & Stopper Co., Buick; Auburn Motor Sales Co., Auburn; Baird-North Co., Apperson; Charles Barre, Lewis and Allen; Broadway Sales Co., Dodge.

Cadillac Auto Co., Cadillac and G. M. C.; Harold C. Crane, Standard-Eight; Nelson S. Davis, Locomobile; Richard G. Davis, Haynes; Howard G. Duckworth, Maxwell; Foss-Hughes Co., Pierce-Arrow; Foster-Smith Co., Chalmers and Winton; William H. Fuller, Cole.

Goodby-Rankin Co., supplies; Goodwin-Sherman Motor Car Co., Studebaker; Albert J. Howard, Scripps-Booth; The William Hughes Co., Inc., Reo; Knight Automobile Co., National, Stearns-Knight, White; Longley Motor Sales Co., King; J. A. McDonald, Jackson; Metz Co., Metz; Frank Mount, Briscoe; Edgar L. Nock, Moon; Oakland Motor Co., Oakland.

John O'Donnell, Jeffery, Marion, Premier; Packard Motor Car Co., Packard; Paige Motor Co. of R. I., Paige; Peckham Bros. Co., Chevrolet, Oldsmobile; Robert W. Powers, Hudson.

Providence Auto Equipment Co., supplies; Pugh Bros. Co., Overland, Saxon, Stutz; Chauncey M. Stone, Bell, Davis; Wentworth-Fosdick Co., Dort; Whitten Motor Vehicle Co., Westcott; Wallace L. Wilcox, Franklin.

Commercial cars—Autocar Sales & Service Co., Autocar; B. F. & A. W. Hopkins, Reo and International; Knox Motors Associates, Knox trucks; Metz Co., Metz delivery; U. S. Mill Supply Co., Federal; Vim Sales Co., Vim.

Accessory exhibits—Congdon & Carpenter, accessories; Fleming Mfg. Co., wearing apparel; Ernst Flentje, shock absorber; Fryer-Auster Co., tonneau shield; Goodwin-Sherman Motor Car Co., weather-proof top; Graphinoll Co., oils and greases; A. E. Graves Mfg. Co., Pyramid supports; Louis M. Jackson, Hassler shock absorbers; Metallic Shell & Tube Co., seamless radiators; Providence Auto Equipment Co., accessories; Spencer-Wilkie Motor Car Co., Giant Ford starter; Twin Rim Co., twin rim for Ford cars; Vesta-Providence Co., accessories.

Paige Promotes Sales Contest

DETROIT, Nov. 27—The Paige-Detroit Motor Car Co. has promoted a sales contest among its salesmen for the month of November. Every Paige dealer or salesman was eligible and three cash prizes of respectively \$100, \$50 and \$25 will be awarded to the three salesmen who have scored the largest record of sales of Paige cars during the month. The rules provide that the sales be made between November 1 and November 30, and specify immediate deliveries on models the factory can make immediate deliveries on. In the event a sale is made the last few days of November and there is no car on hand to deliver, the sale will be counted if the factory can make immediate delivery. Points will be counted by the value of the cars sold.

Three Big Days a Week

BELOIT, WIS., Nov. 22—The motor car is directly responsible for giving the merchants in this city three big days a week instead of one. Before the advent and general use of motor cars, Saturday was the big day, and almost the entire countryside came to town to shop. Now, however, merchants reckon Monday and Wednesday as well as Saturday days when they may expect a brisk country trade.

The RETAIL NEWS

EAST

Luther Clemens, Wheeling, W. Va., has opened a repairshop on the National road near Rudler's.

The Studebaker Corp.'s New York service building in Long Island City has been completed and the company has taken possession. It is concrete, 80 x 160, and is on Anable avenue, south of Meadow street.

The Motor Sales Agency, East Orange and Montclair, N. J., has taken the Moon agency. H. F. Herdman is president. The salesrooms in Montclair are at 607 Bloomfield avenue and in East Orange are at Main and Clinton streets.

The Davis & Roberts Garage, Elmira, N. Y., has been opened in a new building, 50 x 100, at 600 East Water street. It cost \$6,000 and its four walls are made up largely of windows.

The Forbes Motor Car Co., 5944-46 Baum boulevard, Pittsburgh, has sold its business to the R. E. Loughney Motor Co., a new company, the officers of which are: President, R. E. Loughney; vice-president, E. H. Mulvehill; secretary, Bayard Stewart. The company handles the Maxwell and Stutz.

The Capitol Auto Service Co., Washington, D. C., has moved from 1923 to 1811 14th street, northwest. The company handles the Regal.

The West End Automobile Co., Brownsville, Pa., is building a garage on Snowden Square. It will be 44 ft. front and 144 ft. in depth.

The Painter-Dunn Co., Pittsburgh, will build a two-story garage and storage building, 100 x 150. It will cost \$15,000.

The Howarth Automobile Co., Utica, N. Y., is about to open for business at 72 Lafayette street. The president is A. P. Howarth. The company will handle the Oldsmobile and Velle.

The Modern Repairshop, Allentown, Pa., has completed an addition to its building at 836 Lawrence street.

P. H. Kevoch, Harrisburg, Pa., has taken possession of new salesrooms at 15 South Third street. He handles the Jackson.

Bolton's Garage, Lebanon, Pa., is building an addition.

The Pittsburgh-Saxon Co., Pittsburgh, has opened at 819 Liberty avenue as distributor of the Saxon. The principal is John C. Shaw, president of the Shaw Motor Co., of Uniontown.

The Weir Motor Sales Co., Buffalo, has been formed by James R. Moore, P. Eugene Weir and Knight Neftel. The capitalization is \$12,000.

Dr. S. C. Stewart, Clearfield, Pa., has secured plans for a three-story brick and steel garage. It will be erected on Locust street and will cost \$10,000.

The Borst-Damon Co., Buffalo, has been formed by A. J. Borst, Jr., W. Roy Ferrich and Henry A. Damon with a capitalization of \$25,000. They plan to conduct a car sales agency.

W. F. Morrill, Diagonal, Pa., plans to build a garage, 28 x 60. Heretofore he has conducted a blacksmith shop.

The Overland-Rochester Co., Rochester, plans to have a new sales and service building completed by February 1 at 28 South Union street. It will be three stories and basement, of brick and steel, and 100 x 152.

The Cadillac Automobile Co., Providence, sustained a loss of \$8,000 in a fire which destroyed the Providence Warehouse Co.'s building at 29 Mason street.

John L. Degler, Boyertown, Pa., is erecting a three-story garage, 35 x 110, of brick and steel. It will contain a salesroom and accessory store.

G. W. Baldwin & Sons, New Haven, Conn., will erect a two-story garage, 32 x 100.

William Sonford, Ridgeway, Pa., has opened a garage.

Otto G. Simonson, Baltimore, will erect a garage on Harrison street. It will be four stories and cost \$10,000.

U. S. Rogers and T. T. Morrill, Warren, Pa., have purchased the Warren Garage from George Colvin. Colvin has secured the Studebaker agency in Philadelphia.

The Clarke Motor Co., Baltimore, has been formed by W. T. and James C. Clarke, Jr., and has opened a garage at Park avenue and Biddle street.

The H-O Auto Accessories Co., Baltimore, has been formed by Stanley P. Handle and Maurice R. Oppenheim. It has opened an accessory and supply store at St. Paul and Center streets.

The Lexington Storage Warehouses, Baltimore, which recently opened a garage at 207 North Greene street, has opened an accessory store at the same place.

W. W. Ford, White Plains, N. Y., is to build a three-story garage on South Lexington avenue.

The Young Tire & Rubber Co., Holyoke, Mass., has let the contract for a one-story brick garage, 60 x 122.

E. W. Lambert, Ellwood City, Pa., plans to erect a garage, 44 x 110, on Lawrence avenue, between 8th and 9th streets. The building will be two stories and will contain a display room for the Overland, which Lambert handles.

George W. Rife, Baltimore, will have a garage at 13-15 Harrison street. Plans have been filed for the alteration of the present structure, to cost \$10,000. The present building is a four-story and was recently purchased by Rife for \$18,000.

J. Mechlinski, Baltimore, has just awarded a contract for a garage at Durham and Bank streets. It will be one story, 40 x 63 ft., of brick, with slag roofing, steam heat and electric lighted, and will cost \$4,000.

The Richardson Garage, 1802 Norton street, Baltimore, F. L. Pollard and Donald R. Richardson, proprietors, has acquired the distribution of the Westinghouse electric lighting and starting system for Fords.

The Bowman Sales Co., Erie, Pa., King dealer, has opened a new showroom at 1704 East street.

The Hollier Motor Sales Co., Boston, has just been formed by N. W. Thompson to handle the Hollier. Salesrooms have been secured at 911 Boylston street.

George W. Reinbold, 2419 North Broad street, Philadelphia, is building a showroom and service station at 2506 North Broad street. He handles the Scripps-Booth.

The Morris Estate, Philadelphia, is having two two-story brick garages erected on Overbrook avenue, east of 71st street, at a cost of \$4,000.

The Metz Automobile Co., 338-340 North Broad street, Philadelphia, has leased prop-

erty at 3437 North Broad street, which has been converted into a service station and a branch for the handling of the new Metz commercial car.

John L. Degler, Boyertown, Pa., owner of the Boyertown Garage, has purchased ground on Philadelphia avenue, 35 x 110, on which he will erect a two- and three-story brick and steel garage.

The Overland Stores Co., Boston, has taken title to a tract of land in the Back Bay section upon which will be erected a four-story structure for the Connell & McKone Co., New England distributor of the Overland. The land has a frontage of 215 ft. on Brookline avenue and 495 ft. on an adjoining street and is assessed at \$124,500. It comprises 99,827 sq. ft. The Willys-Overland Co. is erecting another large plant in Springfield and others will be put up elsewhere.

The Moore Auto Co., 1021 Gilpin avenue, Wilmington, Del., is to build an addition to its garage and salesroom.

The Tourists Garage & Motor Repair Co., Gilpin avenue and Adams street, Wilmington, Del., which recently built a garage, has found it necessary to enlarge; the building, which is of brick, will be extended from Gilpin to Delaware avenue, increasing the depth from 140 to 320 ft. The building is 42 ft. wide.

The Firestone Tire & Rubber Co. is planning to take another floor in the building at 1871 Broadway, thus the entire building will be occupied by the company. Interior alterations will make room for increased business.

The Mid-City Garage & Motor Supply Co., Baltimore, has been incorporated at \$250,000 and will erect a 200-car garage at 27-31 South Charles street. It will be four story and basement, of reinforced concrete, and will cost about \$90,000. Ramps will be used to go to all parts of the building and an elevator will be provided for disabled cars. The basement will be used for accessory and supply departments. The Union Trust Co. is financing the proposition. The officers of the company are: President, John W. Frick; vice-president and general manager, Horace Slingluff; secretary and treasurer, Morris H. Grape. John R. Bland, Charles T. Crane, Ezra B. Whitman, Ral Parr and the officers constitute the board of directors.

Reed & Reed, Inc., New York, have taken the Studebaker agency for Bronx county and have moved into a showroom at 361 East 149th street. The building is 30 x 90, and was built for the purpose. A service station has also been opened.

L. C. Clifford, Greenfield, Mass., have started work upon an addition to their garage on Hope street.

Harold Bassett and Arthur Stannard, Orleans, Vt., have purchased the Kimball block and have begun the construction of a garage.

The McKennas, Stoneham, Mass., are erecting a garage and salesroom.

Elmer E. Wentworth, Springvale, Me., is erecting an addition to his garage, to be used for an office and accessory store.

The Paterson Motor Sales Co., Philadelphia, has been incorporated by C. O. Richard Kendig, president, and D. M. Martin, formerly of the Maxwell Motor Co., vice-president and treasurer. Temporary headquarters are at Broad and Race streets. They will handle the Paterson.

Thomas A. Ogelsby, Marion, Mass., has formed the Ogelsby Motor Car Co. in New Bedford.

Almee L. Guilbert, Joseph Guilbert and Edmund E. Guilbert, Waterbury, Conn., have formed the Jefferson Auto Co.

Stephen D. Pierce, New Bedford, Mass., has opened a new salesroom and garage in the building formerly occupied by the Parker Garage, which he leased and rebuilt.

William Parry, North Cambridge, Mass., has completed plans for the enlargement of his garage on Mt. Pleasant street.

James R. Cartmell, Middleby, Vt., who has been in the trade for several years, has broken ground for a new garage on Washington street.

William L. and Michael Scanlon, Leominster, Mass., have formed the Scanlon Bros. Co., and purchased the Pleasant Street Garage from John C. Congram.

The Williams-Hasley Motor Car Co., Pittsburgh, has been succeeded by the Stein-Williams Motor Co. William Hasley's interest is taken by Alex L. Stein. The company handles the Mitchell at Baum boulevard and Euclid avenue.

Chauncey M. Stone, Providence, R. I., has opened salesrooms at 172 Washington street. He will handle the Davis and Bell.

SOUTH

The Anniston Auto Co., Anniston, Ala., will erect a 50 x 70 addition to its garage at Tenth and Wilner streets. It will cost \$25,000.

Jenkins, Shaw & Davis, Birmingham, Ala., has opened a garage, 25 x 140, at 2025 Fourth avenue, north.

Roy P. Smith, Clarkesville, Tenn., has opened a garage at 117-19 North Second street. He handles the Dodge Bros.

The Gates Mfg. Co., Indianapolis, has opened a branch in Atlanta, with E. A. Thomas as manager. The company makes seat covers and tops.

The Weaver-Henderson Auto Co., Montgomery, Ala., has opened salesrooms at 206 Dexter avenue and will handle the Hudson. The proprietors are T. W. Weaver and W. E. Henderson.

W. B. Whitt & Sons, McGlone, Ky., plan to erect a two-story brick garage to cost \$9,000.

The Enger-Georgia Motor Co., Atlanta, has taken larger quarters at 217 Peachtree street. The company handles the Enger.

Haag's Auto Repairshop, Louisville, has been formed by Warner D. Jones, Edwin A. Haag and S. C. Miller.

The People's Motor Co., Louisville, has moved to 949-51 South Third street and will enter into the sale of cars.

The Cherokee Motor Co., Knoxville, Tenn., which has the Studebaker agency, is preparing to rebuild its garage and salesroom, which was badly damaged by fire recently.

The Chandler Sales & Service Co., Nashville, Tenn., has added the agency for the Winton to its line. E. Gray Smith, who formerly held the Winton agency, will manage the Winton sales.

The Ames Motor Car Co., Owensboro, Ky., has secured the agency for the Packard and the Dodge Bros. The company is controlled by Colonel F. A. Ames, carriage manufacturer, and for some time past has been putting out a car of its own under the name of Ames.

NASHVILLE, TENN., Nov. 30—Four garages, three of which are adjoining and the fourth across the street, are under construction here, with an aggregate cost of \$10,000. All of them are of reinforced concrete. The concerns who will occupy them are as follows: Ford Motor Co., salesroom and service station; Union Motor Car Co., Overland and Willys-Knight dealer, salesroom and service station; Hager Motor Car Co., garage; Whiteman-Kirkpatrick Electric Co., Rauch & Lang electric salesroom, garage and service station. The last named is on the opposite side of Broadway from the others. The Ford garage will be a three-story building, 75 x 170, while the others will be two stories each and 50 x 170. The three adjoining

garages will have approaches from two levels, the first floor approach being from the street in front and the basement being reached by an alley in the rear.

NORTHWEST

Busch & Boxrud, Red Wing, Minn., have awarded the contract for a garage. It will cost \$25,000.

C. J. Novak, Cedar Rapids, Ia., plans to erect a garage and machine shop.

Horace Plunkett, Omaha, has secured plans for a one-story garage 60 x 132. The estimated cost is \$12,000.

The Handy-Lewis Motor Co., Willmar, Minn., has erected a machine shop, 50 x 75, in connection with its garage.

J. T. Anderson, Litchfield, Minn., has sold his interest in the Andehson-Millberg Garage to his partner.

James A. Murray, Butte, Mont., is erecting a garage on Quartz street.

Otto W. Timm, Kenmare, N. D., will open a garage and repairshop in the England building.

Joseph Eenn & Son, Lake Benton, Minn., have completed an addition to their garage.

G. H. Lounsbury, Morgan Park, Duluth, Minn., is erecting a concrete garage and shop, 87 x 187.

N. P. Goerts, Mountain Lake, Minn., is erecting a one-story garage, 48 x 65.

Bean & Son, Green Isle, Minn., are constructing a concrete garage, 74 x 90.

The Excelsior Auto Co., Albert Lea, Minn., owned by F. W. Niebuhr and A. R. Holman, has been bought by Oscar W. Black, of Independence, Ia.

Mariana Bros., Stillwater, Minn., are constructing a garage on South William street.

Martin Curtis, Billings, Mont., has bought an interest in the Aurich Motor Repairshop, 223 North Broadway.

Eugene Mills and A. D. Michaels, Buffalo, Minn., have opened a garage in the Varner building.

L. H. Hamilton, Great Falls, Mont., has obtained control of the Standard Garage.

Macy & Young, Springfield, S. D., have bought the Walter Marvin Garage.

Chris Hochhalter, Streeter, N. D., is erecting a garage and machine shop.

Nels Lind, Sioux Falls, S. D., has opened a garage.

Richards & Krueger, Hutchinson, Minn., have taken over the management of the Central Garage.

Thomas Cullen, Confrey, Minn., will erect a garage, 41 x 80.

George Holler, International Falls, Minn., has bought the Twin City Garage from E. E. Peterson and Joseph Riley.

C. E. Lamberton, Redwood Falls, Minn., has opened a garage.

B. A. Sandbeck, Fosston, Minn., has sold his interest in the Afseth & Sandbeck garage to Christian Afseth, his partner.

Skotchpol Bros., Denton, Mont., have taken the agency for the Paige.

H. D. Mack, Dickey, N. D., has taken the agency for the Crow-Elkhart car.

Harry W. Keep, 156 North Dale street, St. Paul, has taken the agency for the Apperson.

The Wells Motor Co., Aberdeen, S. D., has

leased the Foster building, Fourth avenue South and First street.

Finberg & Lewis, Clinton, Minn., owners of the New Garage, will erect a large addition.

K. T. Skaren and George Thorson, Grand Forks, N. D., have sold the Thorson Auto Co. to C. O. and K. Hawkinson, Fargo, N. D.

The Fair City Tire Repairshop, Huron, S. D., has been sold by W. H. Allingham to G. A. Richard.

The Locomobile Co. of America has moved its Minneapolis branch to new headquarters at Harmon place and Twelfth street.

T. F. Cullen & Co., Inc., has been incorporated with an authorized capital of \$50,000, headquarters to be in St. Paul. The company's charter permits it to deal in automobiles and farm implements. Behind the organization are Thomas F. Cullen, Charles L. Holland, Carl Buechner and George Meier.

W. J. Wood, Elliott, Ia., has bought the garage of the Overland Route Automobile Co., and will make improvements. James Bryner, of Griswold, formerly owned the property.

A. J. Bensmiller, Sigournay, Ia., has completed a new garage. He has erected an elevator in front of the building and has a large electric garage sign. He handles the Studebaker.

Roff & Roff, Spirit Lake, Ia., is a new garage concern, which succeeds the old firm of Roff, Thompson & Roff. J. B. Thompson, of the old concern has sold out his interest to his two partners.

William Feight, Milo, Ia., has bought out the interest of Manning Marquis in the Feight & Marquis Garage and is now the sole owner.

Alfred Nelsen, Ringsted, Ia., has bought the garage of the Hendricksen & Kundsens Motor Co. and has secured the agency for the Chevrolet and Buick.

C. A. Hoover, Hoover Auto Co., Oskaloosa, Ia., has secured the agency for the Dodge Bros.

J. M. Randolph, Milton, Ia., has bought the Waubonsie Garage from L. E. Toops.

MINNEAPOLIS, Nov. 23—Several changes have taken place in the Hupmobile representation. The local agency, which was with the Allen-Van Nest Co., has been transferred to the Zolle Co., 220 Sixth street S., which has transferred its Pathfinder agency to the John P. Snyder Co., 407 Tenth street S. S. D. Briggs, for many years with the Pence Automobile Co., has been made manager of a new organization, the Northwest Hupmobile Co., 620 Third street S., which will distribute the car in Minnesota, North Dakota, eastern Montana and western Wisconsin.

Madson & Hansen, Coulter, Ia., have bought out Christenson and Blom.

James Mathews & Sons, Farmersburg, Ia., has suffered loss by fire, which destroyed the garage and contents.

Halbert Martin, Hamburg, Ia., has opened a garage in a mill on E street. An electric elevator is a part of the garage equipment.

The Newburg Automobile Co., Newburg, Ia., soon will move into its new garage, 45 x 75, now being completed.

J. H. Guzman, Iowa City, Ia., has taken the Apperson agency.

The Calligan Auto Co., West Bend, Ia., is doubling the capacity of its garage. The entire garage is being improved also by the placing of a concrete floor and the addition of new equipment.

A. H. Watson, Sioux Falls, S. D., and J. F. Van Leuen, of Minneapolis, Minn., have bought the garage of Rohde Brothers in

Read About That System

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Rock Rapids, Ia. The Maxwell will be handled. Accessories will be handled also.

Michael Barth, Locust, Ia., has bought the T. F. Connor Garage in Decorah, Ia., for \$4,400. The building is modern and 30 x 100.

W. H. Burrows, of the Western Auto Supply Co., Cedar Rapids, Ia., has taken the agency for the Franklin.

O. E. Hillman, formerly in the garage business at Carroll, Ia., has established a new garage in Palmer in Pocahontas county, Ia.

W. A. Wilson, Carroll, Ia., has closed out the business of the Wilson Motor Co. and has returned to his home in Des Moines.

The Falke Auto Co., Remsen, Ia., held a grand opening Nov. 11 in its new building, which houses an opera house as well as a garage.

The Coggon Auto Co., Coggon, Ia., will build an addition, 32 x 55. The addition will be two stories high, of fireproof construction, and with cement floors.

The Ogden Auto Sales & Garage Co., Chicago, is erecting a garage, 101 x 145, at Ogden and Springfield avenues. It will cost \$20,000.

J. A. Wolf, Chicago, is building a garage, 60 x 125, at North Kedzie and Carmen avenues. It will cost \$8,500.

I. B. Huffman, Plain City, O., has leased a garage on East Main street for 3 years and will improve and operate it.

Herman Baker, Wethersfield, Ill., is erecting a two-story garage, 50 x 150.

The Prest-O-Lite Co., Indianapolis, has taken possession of new branch quarters at 510 North Capitol avenue. The new building is about 4 times as large as the former quarters, which were one block further south.

The Globe Motor Car Co., Canton, O., plans to erect a brick, steel and concrete garage, which will cost \$100,000.

Charles Wheeler, Columbus, is asking bids on a two-story brick garage to stand at 413 East Broad street. It will cost \$35,000, and part of it will be used as a dance hall.

The Main Motor Car Co., Logan, O., is about to build a two-story and basement brick garage, store and office building. It will cost \$10,000.

The Cadillac Automobile Co., Chicago, will erect an eight-story building at Indiana avenue and 23rd street. The estimated cost is \$200,000.

The Hartford Auto Tire Pump Co., Hartford, Wis., is erecting a two-story garage, 55 x 80.

Lomont Bros., Ft. Wayne, Ind., who recently acquired the Roussey Auto Tire Co., have taken over the Wayne Speedometer Service Station. The combined businesses will be styled Wayne Motor Service Co.

A. N. Wright, Cleveland, plans to erect a two-and-one-half-story brick garage on Coventry road. The estimated cost is \$14,000.

Samuel Friend, Ravenna, O., is building a two-story brick garage.

The Marietta Auto Service Co., Marietta, has opened salesrooms at 205 Second street and will handle the Cadillac, Studebaker and Chevrolet. A. D. Stewart is manager.

The Interstate Automobile Co., Youngstown, O., has opened a new garage on Pyatt street. Frank P. Smith is proprietor; the Ford and Paige are handled.

The Bloomdale Garage Co., Bloomdale, O., has been incorporated at \$10,000 by C. R. Simpkins, F. P. Conway and K. B. Hosier.

The Oconto Falls Motor Car Co., Oconto Falls, Wis., is making an addition to its garage.

The Auto Truck Service Co., 946 Third street, Milwaukee, has awarded contracts

for a \$5,000 addition to its garage and repairshop. The building will be of brick and steel, 30 x 90, and one story high.

A. L. Ryer, Darlen, Wis., is completing a new garage and repairshop, 44 x 100, and one story, equipped with a private electric lighting system. Ryer represents the Oakland.

C. C. Wedige, Belmont, Wis., is establishing a garage and repairshop and has selected J. F. Gourlie as manager. The garage is located in temporary quarters, for Wedige intends to build a fireproof garage next spring.

The Fowler Motor Sales Co., Milwaukee, has been organized by J. C. Fowler, formerly of LaCrosse, Wis., who has purchased the business of the Creek Motor Sales Co., 441-445 Jackson street, dealer in the Inter-State and Apperson in Wisconsin and upper Michigan.

Grant Roof, Mason City, Ill., has purchased a building at Tonica and Pine streets and will convert it into a garage.

The Pioneer Welding Co., Kalamazoo, Mich., has moved into its new quarters at 620 East Main street.

Charles A. Peabody, St. Joseph, Ill., has sold his garage on Main street to J. R. Stookey, who will hereafter operate it. Peabody will move to his farm in Michigan.

The Imperial Garage, 213-219 East Capitol avenue, Springfield, Ill., has been sold by C. E. Knecht to Lewis Vogel, C. M. Vall, Robert Conn, E. L. Abbey, Verne De Long and A. M. Weston. Weston has been connected with the Woods Electric company in Chicago for eight years. The new firm has secured the agency for the Allen and Halladay.

Harry Newman, Inc., Chicago, has been appointed distributor of the Chalmers in Wisconsin, southern Minnesota and northern Michigan. The Newman company has leased the former Packard garage at Grand avenue and Seventh street, Milwaukee, as headquarters and a service station. Branch service stations and salesrooms are to be established in other cities.

The City Model Works, Toledo, has been incorporated with a capital of \$1,000 to do repairing. The incorporators are John B. McMahan, Joseph F. Crane, Elmer M. Cooney, William Richards and Leo E. English.

The Auto Radiator Repair Co., Columbus, has opened up at 153 North Fourth street, to do repairing.

James W. Day, Columbus, who has been connected with the Cadillac agency in Columbus, has taken a position as head of the automobile repair department of the John Immer & Sons Co., Livingston avenue.

The Breckenridge Auto Sales Co., Breckenridge, Mich., has been formed by W. M. Gidley and Robert Sawel, to handle the Grant and Paterson.

Frank M. Housemann, Monroe, Mich., will open an accessory and supplies store in the Entemann building.

The City Garage, Tomah, Wis., owned by Emil Janke, was totally destroyed by fire, causing a loss of more than \$10,000. Janke intends to build a new fireproof garage.

Jess D. Heybach, Leitchfield, Ky., is building a brick and concrete garage, 36 x 107, with basement. He will install a gasoline curb pump and an air system. He also will carry accessories and maintain a repair shop and sell the Ford.

Fred Sauerman, Rock Island, Ill., has let the contract for a new fireproof garage, to be erected at 1706-10 Fourth avenue. It will cost \$7,000. Accessories will be carried.

The Central Auto Co., Rockford, Ill., has been organized and has taken possession of the garage and salesroom on North First street, purchasing the interests of W. E. Dewey, who retires. This firm will handle the Allen and will be the distributor in Winnebago county.

F. E. Jones, Rockford, Ill., has opened a garage. It has a width of 66 ft. and a depth of 160 ft. A feature is a ladies' waiting room.

Harry C. Daley and Leo Seaman, Carlinville, Ill., have purchased the garage of the Peebles Motor Co., on West Main street. The former owner, E. B. Peebles, retires. Daley will look after the sales and accessory department, while Seaman will supervise the mechanical end.

The Bernhagen Motor Car Co., Embarrass, Wis., is building a new fireproof garage, 40 x 74, one story and basement.

Helms Bros., Marion, Wis., are completing a new concrete garage, 38 x 96, one story and basement.

Emil Janke, Tomah, Wis., proprietor of the City Garage, which was destroyed by fire, will erect a modern fireproof building this winter.

Julius Edwin and son, Harvey, Rhineclander, Wis., have purchased a site, 40 x 150, and will erect a garage and motor livery building.

The Bittel-Leftwich Co., St. Louis, has opened a branch at 241 East Main street, Decatur, Ill. The firm will handle tires and automobile accessories at wholesale and retail and conduct a repair business. A. Turner, formerly in charge of the Springfield, Ill., branch, has been placed in charge.

Jean and Guy Brooner, Mason City, Ill., who have been operating a garage on South Tonica street for the past four years, disposed of their plant this week to L. C. Copper. The new proprietor contemplates various improvements and will increase the accessory stock.

L. E. Colgrove, Grand Rapids, Mich., distributor of the Hudson, has moved into the building formerly occupied by the Cadillac agency, 220 North Ionia avenue. In this new building Cosgrove will install a large supply department.

The Phelps Auto Sales Co., Grand Rapids, Mich., in addition to handling the King and Apperson, has taken the agency for the Madison.

A. T. Smith, St. Johns, Mich., is erecting a two-story brick garage.

James Ovans, Prentice, Wis., who has been operating a small repairshop, has made arrangements for the erection of a modern fireproof garage, of which the present shop will form a part.

Al Couture, Eau Claire, Wis., is building a garage at Gray and River streets, to be 26 x 80, one story and basement. It will be ready about Dec. 20.

S. W. Renner, Columbus, who operates a garage at 2810 West Broad street, has taken the central Ohio agency for the Glide. He will secure a downtown location.

Michael Abel, Columbus, formerly the Baker dealer, and Frank J. Biele, Rauch & Lang dealer, have formed a partnership to handle the Baker-R. & L. in central Ohio.

The Wiedman Auto Garage, Ypsilanti, Mich., is to be remodeled and an addition built to give it twice as much room as it now has.

Umsted & Baker, Newport, Ark., are having erected a brick garage, 70 x 40.

Accuracy in Accounting

Page 5

General Electric Buys Owen Magnetic Interest

**Also, Company Is Formed to Control
the Entz Patents—Capitalized at
\$6,000,000—Owen Increasing
Production**

NEW YORK, Nov. 30—The General Electric Co., Schenectady, N. Y., has secured a substantial interest in the R. M. Owen Co., manufacturer of the Owen magnetic car and controller of the patents of J. B. Entz on electric transmission systems as employed in this car. Coincident with the General Electric Co.'s move is the organization of the Entz Motor Patents Corp., which will control all of the Entz electric patents and which also has a license to use all of the General Electric patents that will be helpful in the Entz electric system. This new corporation is capitalized at \$6,000,000, made up of \$5,000,000 common, and \$1,000,000 7 per cent preferred. The stock is not placed on the market.

The General Electric Co. has already begun tooling up its Fort Wayne, Ind., factory for the manufacture of the electric unit for the Owen company, and all other concerns that will be licensed by the Entz Motor Patents Corp. to use the Entz transmission system. The Ft. Wayne plant is one of the best ones of the General Electric and is centrally located for the automobile industry, being close to Detroit, Cleveland, Toledo, and all of the large automobile centers in that section.

Under this new arrangement the R. M. Owen Co. will continue the manufacture of the Owen magnetic car at its factory, where 100 of the cars have already been completed and production has started on a second run of 500. Production will rapidly increase.

R. M. Owen will be elected president of the Entz Motor Patents Corp., and E. S. Partridge will be sales manager.

It has been known for several months that the General Electric Co. has been deeply interested in the Owen magnetic. Last July the General Electric made a very exhaustive test of two Owen magnetic cars which were driven from New York to their laboratories where tests on the efficiency of the electric transmission system were conducted, these extending over two days. These tests were entirely satisfactory, and after the tests were completed, the Owen cars were given road tests under the direction of W. P. Potter, chief engineer of the railroad department, and C. E. Stone, manager of the lighting department, in company with Henry Chatain, who has charge of the gasoline-electric department of the company. In the road test the cars were driven from Schenectady

to the General Electric factory at Erie, Pa., and thence to Pittsfield, Mass., thence to Lynn, Mass., and finally back to New York. In the meantime a hill-climbing competition was carried out on Kennedy's Mountain, near Cornwall. This mountain has a grade of 17 per cent for 2,000 ft. and 11 per cent for 3,000. Here ten of the engineering corps of the General Electric put the Owen cars through their final test. It was as a result of this road performance that the General Electric decided to secure a substantial interest in the Entz patents.

The Carl H. Page Motors Co., 350 North Broad street, Philadelphia, has taken the agency for the Owen magnetic. D. Willard is in charge.

Olds Dealers Convene

LANSING, MICH., Nov. 27—Oldsmobile distributors were guests of the Olds Motor Works during several days at the plant. During the two days of the convention the visitors were addressed by Sales Manager J. V. Hall, who made the statement that once the point of saturation is reached in the automobile market, and the supply of cars exceeds the demand, the success of the retail dealer as well as the manufacturer will depend upon his ability as a merchant. Assistant Sales Manager N. W. Barton spoke of improved methods in marketing motor cars. Chief Engineer F. Sergardi gave a talk about the Oldsmobile chassis and engine. Advertising Manager C. V. McGuire talked about "atmosphere" in advertising. Service Manager F. C. Hill talked about Oldsmobile service. W. H. Mooney, installation engineer of the Dayton Engineering Laboratories, spoke on the subject of multi-cylinder ignition. H. W. Farr, representing the Johnson Carburetor Co., gave a lecture on carburation. Those present were:

D. L. Tschantz, Canton Buggy Co., Canton, O.; M. Zilbermann, New Orleans; A. E. Tourssen, Randall-Dodd Auto Co., Salt Lake City; H. E. Shoberg, Shoberg Motor Co., Sioux City; L. D. Thompson, Machinery Sales Co., Oklahoma City; N. D. Sutherland, Tulsa; A. M. Zerweck and P. H. Brookman, De Luxe Automobile Co., St. Louis; W. W. Barnett, Denver; Elwood F. Bell, Spartanburg, S. C.; J. N. Bussey, Oldsmobile Distributing Co., Albany and Troy, N. Y.; T. N. Bromwell, Oldsmobile Sales Co., Omaha; R. V. Swartsell, Central Motor Sales Co., Dayton; E. W. Keene, Billings, Mont.; Geo. S. Morrow, Oldsmobile Co. of Pittsburgh; Lous Engel, Jr., manager, Oldsmobile Co. of Buffalo; C. H. Larson, manager, Cutting-Larson Co., New York; Hasbrouck Haynes, Dixie Motors Co., Evansville, Ind.; J. J. MacGregor, manager, Oldsmobile Co. of New England, Boston; L. D. Frint, Frint Motor Car Co., Milwaukee; G. O. Wildhack, the Wildhack Co., Indianapolis; J. R. McMullen, Motor Supply Co., Wichita Falls, Tex.; E. J. Brock, Jr., Oldsmobile Sales Co., Fort Worth; M. K. Pollock, Pollock Car Corp., Washington; W. T. Scarritt, secretary, Bond Motor Co., Kansas City; Bohn E. Fawkes, Minneapolis; H. D. Ryus, manager, Oldsmobile Co. of California, San Francisco; Frank K. Taylor, Iowa Oldsmobile Co., Des Moines.

Indianapolis Course Is Shortened to 300 Miles

**And Purse Is Reduced from \$50,000 to
\$30,000—Resta Sails for France
to Endeavor to Get New
Peugeot**

INDIANAPOLIS, Nov. 27—At a meeting of the board of directors of the Indianapolis motor speedway, held this week, it was decided to reduce the distance of the May 30 race from 500 to 300 miles and to cut the purse from \$50,000 to \$30,000, the prize money to be divided in ten parts. The entrance fee will be \$100, which will be refunded to the entrant if his car starts. The 1916 race will start at 1:30 p. m.

NEW YORK, Nov. 26—Dario Resta, hero of the 1915 speedway season, sailed yesterday for England. He will go to France for new parts for his Peugeot. He also plans to buy another car from the Peugeot makers if there is one for sale.

Studebaker Portland and Dallas Branches

DETROIT, Nov. 12—Officials of the Studebaker Corp. are now in Portland, Ore., and Dallas, where it has been decided to erect Studebaker branches. The plans for the new buildings are not yet finally approved, but it is said that they will be from four to six stories high and will have at least 50,000 sq. ft. of floor space. The new branch house in Kansas City is nearing completion and will probably be occupied by Jan. 1. Fronting on Grand avenue, the structure will be five stories high, while on the 21st street side it will have six stories. On the first floor there will be the showrooms and offices for both the retail and wholesale branches. Repair parts and stock will be kept on the second floor and on the other floors cars will be stored. The basement will be used partly as repairshop and partly as shipping and receiving room.

McNaull Tire Increases Capital \$2,225,000

TOLEDO, Nov. 11—A new McNaull Tire Co. has been incorporated with a capital of \$2,500,000 to succeed the McNaull Auto-Tire Co. The present capitalization of the McNaull Auto-Tire Co. is \$275,000. Under the reorganization the capital of \$2,500,000 will be divided into \$1,000,000 preferred and \$1,500,000 common stock. The plant will be enlarged by the reorganized company and employment given to 1,000 more men.

Debit and Credit

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Association News

Thorpe Illinois Secretary

CHICAGO, Nov. 30—At a meeting of the board of directors of the Garage Owners Association of Illinois, J. C. Thorpe, president of the Marmon-Buick Sales Co., Urbana, Ill., was appointed as secretary to fill the vacancy caused by the resignation of E. J. McGuirk.

Thorpe has accepted this position and will devote his time gratuitously, assisting the association to take care of this work until the time of the annual convention, Jan. 25, 1916, at the Congress Hotel, this city, at which time the annual election will take place.

The resignation of McGuirk was due to the fact that he is taking up the organization work of the Associated Garages of America, and, that being a large undertaking, his time will be exclusively devoted to that. He also will have direct charge of the convention, which will be held at the Congress Hotel, Jan. 26 and 27, 1916.

Plan to Fight Tax

BOSTON, Nov. 30—President John H. MacAlman of the Boston Automobile Dealers Association, on reading the proposed tax on horsepower of motor cars to secure Federal revenue, called a meeting of his association for this morning to take action on the matter. President MacAlman proposed that as John H. Johnson, the Buick dealer; J. W. Maguire, the Pierce-Arrow dealer, and Joseph J. Donovan, the Studebaker agent, were still directors of the association and had comprised the committee that went to Washington a year ago on the same bill, that they hold themselves in readiness to go again. The committee was empowered to enlarge its numbers if necessary, and it was instructed to have a conference with Congressmen James A. Gallivan, Peter Tague, George H. Tinkham, Michael J. Phelan and George Carter, all of whom represent sections in and around Eastern Massachusetts, where the members of the association do business. This conference may be held collectively or individually, as the committee chooses, and before Congress assembles.

Truck Men Discuss Service

NEW YORK, Nov. 22—"Both sides of the service question" was the general topic discussed by the Motor Truck Club of America Nov. 17, speakers from among the owner membership and those from the trade collaborating in pithy and short addresses on the different phases of the motor truck service question. That both owners and dealers are striving for the same ends in service was apparent.

Education of owners was emphasized as the most crying need in the relations between the buyer and seller of motor trucks. Wrong selling methods, due to this lack of information on the buyer's part, lead to all manner of mis-sales and false promises. These trade abuses are confined principally to the small buyer, that is, the buyer of one or two trucks, and are very seldom met with in the experience of the fleet operator.

Portland Schedules Show in February

PORTLAND, ORE., Nov. 27—At a meeting of the Portland Automobile Dealers Association it was planned to hold the 1916 show during February. The location has not been definitely decided, but it probably will be held this year in the Multnomah Hotel.

Jacksonville to Have Show in a Park

JACKSONVILLE, FLA., Nov. 27—This city is to have its first show the 20 days following Feb. 10. It is proposed to stage the show in Hemming Park, booths being erected for the various exhibits. Those appointed on the general committee were: Chairman, W. W. Smith; E. W. Pressler, H. C. Avery, L. T. Cheek, J. B. Pound, G. V. Warren, G. W. Edgar, C. C. Kirby, Conrad Mangels, John C. Monoz, A. F. Wilson, J. E. Cohen and James Bradstone.

Baltimore Elects Zell

BALTIMORE, Nov. 27—A. R. Zell was elected president of the Baltimore Automobile Dealers Association at the annual meeting last week, other officers elected being: Vice-president, W. F. Kneip; secretary-treasurer, E. R. Myers. These, together with F. S. Bliven and R. J. W. Hamill, constitute the board of directors.

Springfield Working on Show

SPRINGFIELD, MO., Nov. 27—A. White, manager of the Western Motor Car Co., as chairman of a committee of members of the Springfield Motor Car Dealers Association, will call the committee together for the purpose of completing plans for holding a show here. The week of January 1 has been agreed on as the tentative date for the show.

Carpenter Heads Brooklyn

BROOKLYN, N. Y., Nov. 27—Herbert L. Carpenter, of the Carpenter Motor Vehicle Co., King distributor, was re-elected to the presidency of the Brooklyn Motor Vehicle Dealers Association at the regular meeting held last week. This is his third term as president. Other officers elected were: First vice-presi-

dent, A. D. Corwin; second vice-president, A. E. Randall; secretary, F. H. Miller; treasurer, I. C. Kirkham. The reorganization committee, consisting of C. M. Bishop, A. E. Randall, I. C. Kirkham and A. J. Farrell, submitted a partial report and was requested to continue its work. It was definitely decided to hold the forthcoming show in the 23rd Regiment Armory, as heretofore, March 8-15.

Iowa Dealers to Meet

DES MOINES, Nov. 27—Many subjects of direct interest and importance to garagemen will be discussed at the meeting of the Iowa Retail Automobile Dealers Association, to be held Dec. 9. The headquarters will be at the Savery Hotel. The program follows: Address of welcome, Mayor Hanna; response by President J. Friedman; address, Robert Bland, Evanston, Ill., president Associated Garages of America; address, W. B. Taylor, Rockford, Ill., president Garage Owners Association of Illinois; address, Hon. J. H. Allen, Pocahontas, Ia.; address, Frank Roderus, Chicago; address on garage efficiency, C. E. Dickenson, Algona, Ia.; address on garage efficiency, E. E. Beedee, Davenport, Ia.; address on Workmen's compensation insurance, J. A. Eddy, Des Moines; address on automobile fire insurance, C. H. Johnston, Des Moines; address on proposed garage laws, R. R. Nesbit, Des Moines; address by president, J. Friedman; annual banquet at Savery Hotel at 8 p. m. Visiting ladies will be well entertained by special committees.

Dayton Show Jan. 14-22

DAYTON, Nov. 29—Arrangements have been completed for the Dayton show, to be held Jan. 14 to 22, under the auspices of the Dayton Automobile Dealers Association. The show will be held on one floor of the new Delco building in conjunction with the Industrial Exposition.

Bauer Gets the \$50

PHILADELPHIA, Nov. 27—The prize of \$50 offered by the Philadelphia Automobile Trade Association for the best design exploiting the 15th annual automobile show has been captured for the second successive year by Robert H. Baur, a student of the Industrial Art School, Broad and Pine streets.

White to Exhibit at Automobile Salon

NEW YORK, Nov. 26—The Automobile Salon, which will be held at the Hotel Astor, Jan. 3 to 8, will have more exhibitors than any of its predecessors. The representation of American cars will be increased from three to ten or more. Among these will be the White, Simplex, F. R. P., Singer, Owen Magnetic, Brewster, Daniels and Baker. The foreign makes will include the Rolls-

Royce, Lancia, Delauney-Belleville and Isotta-Fraschini. The body makers already represented are Holbrook, Healey and Brewster.

New Bedford Schedules Show

NEW BEDFORD, MASS., Nov. 29—New Bedford dealers and those in cities and towns nearby will have their annual motor show in the State Armory during the week of Jan. 10-15. A committee was chosen to handle the affair, comprising John Stitt, chairman; Homer J. Parent, treasurer; J. S. Silva, secretary; Stephen D. Pierce, manager.

Dallas After More Members

DALLAS, Nov. 27—A campaign for new members has been started by the Dallas Automobile Dealers' Association. This was decided upon at the meeting last week. Efforts are being made to get every motor car and accessory dealer in Dallas to join.

Dodge Bros. Dealer Parades

BOSTON, Nov. 29—The best parade of motor cars ever witnessed in New England took place this morning when 100 Dodge Bros. cars, many of them decorated, were driven through the principal streets of the city in celebration of the first anniversary of the introduction of Dodge Bros. cars to Boston. The Henshaw Motor Co. staged the parade.

Following the parade the cars were driven to the salesrooms, where President Charles S. Henshaw thanked the motorists, and the judges, James T. Sullivan, chairman; Prof. C. E. Stewart, Franklin Institute; President George W. McNear, Bay State A. A.; Anthony J. Philpot, and John J. McNamara, made the awards, giving three handsome silver cups, each worth \$100, to the owners of the best decorated cars. Mr. Henshaw then gave the motorists tickets to Keith's Theater for the matinee. George H. Phelps, advertising manager, made a special trip from the factory for the occasion and he was tendered a luncheon together with the officials and salesmen of the Henshaw Motor Co.

Maxwell in Non-stop Test

LOS ANGELES, CAL., Nov. 23—A stock Maxwell is making an attempt to establish a new world's non-stop record in and around Los Angeles. The car started yesterday and at the end of 36 hrs. had covered 797 miles, or at an average speed of 22 m. p. h. The car is averaging 26 miles to the gallon of gas. The machine is registered with the A. A. A. as a stock model, the sanction number being 888. Earl Cooper, the racing driver, is acting as temporary A. A. A. representative in this territory. Three employees of the Lord Motor Car Co., southern California and Arizona Maxwell distributors, are driving, spending 8 hours at the wheel on each shift.

7th Edition of Used Car Market Report Is Issued

Models of 1916 Are Added in Many Makes—Five More Dealer Associations Cooperate and Use the Book

CHICAGO, Nov. 30—The seventh edition of the National Used Car Market Report has just been issued by the Chicago Automobile Trade Association. As is evident must be the case with the progress of the industry, this volume is a little larger than the sixth, due to the addition of the 1916 models of many of the cars. In cases where it has not been possible to get authentic figures on 1916 used cars they are not added.

The gasoline car statistics in the sixth edition ended on page 113; in the seventh edition there is a page more. There also are quite a few additions of later models in the electric classification, causing the complete book to end on page 124 instead of 122.

There have been no additions in the list of cars represented. As in the sixth edition, there are 154 gasoline cars and 14 electrics listed.

Greater cooperation is, however, being secured from associations of dealers. The sixth edition listed 28 as subscribing to the service. In the seventh edition these are added: Ohio State Automobile Association, Cleveland; Iowa Automobile Business Association, Des Moines; Hartford Automobile Dealers Association, Hartford, Conn.; St. Louis Automobile Mfgs. and Dealers Association, St. Louis; Troy Automobile Dealers Association, Troy, N. Y. This makes a total of 33.

36-Mile Charge Fails

NEW YORK, Nov. 27—Holding that a rate of speed of 36 m. p. h. is not necessarily presumptive evidence that life or limb has been endangered, County Judge Neimann, in Minneola, L. I., has reversed a previous decision convicting Thomas N. Rhinelander of violating section 287 of the New York Highway law. This prescribes a speed limit of 30 m. p. h. in outlying sections where houses are scattered.

Rhineland, who is a member of the Board of National Highways Protective Society, was arrested for driving his car 36 m. p. h. on the Old Country Road, near Hicksville, L. I., and fined \$10, which he paid under protest and appealed to the county court to test the law.

At the hearing the policeman who made the arrest admitted that Rhineland was not endangering life or limb as there were neither persons nor houses in the vicinity. It was on this ground that Rhineland appealed. Judge Nei-

mann held that the policeman had no right to judge whether life or limb was endangered as that was a question for the court to decide, but at the same time ruled that there was no conclusive evidence to show that Rhineland had broken the law.

Anti-Garage Ordinance Invalid

MILWAUKEE, Nov. 29—The Milwaukee ordinance which prohibits the erection of a garage in a residence section unless the consent of two-thirds of the owners of property within a radius of 300 feet is first obtained has been practically declared invalid by the circuit court of Milwaukee county, which leaves the question of constitutionality to the Supreme Court to decide. The decision intimates that the ordinance is not legal, but makes no explanation.

Fight Reporting of Garaged Cars

JOPLIN, MO., Nov. 27—Eight garage owners and managers have declared their intention of testing the validity of the new measure recently passed by the city, requiring them to report to the police department descriptions of all cars taken to their garages. The owners declare that this would inflict an unnecessary expense on them, as well as antagonizing their customers. The police require the make, size, model, color, kind of lights, motor, car and license number, tires, horn and the names and addresses of owners and drivers of the cars. They believe this will have a tendency to decrease the number of stolen and lost cars.

Durham Distributer for Gray & Davis

NEW YORK, Nov. 30—The New York branch of Gray & Davis, Inc., located at 245 West 55th street, has been discontinued and the P. J. Durham Co., Inc., 244-50 West 49th street, has been made distributer of Gray & Davis products in the metropolitan district. The stock of the branch has been transferred to the Durham company and a full line of lamps and Ford electric starters, as well as repair parts for all Gray & Davis starting and lighting systems, will be carried.

H. B. Shontz, formerly with the C. T. Silver Motor Co., has gone into the Durham company and will have charge of the sales end of the business. The Durham company has made a specialty of service work on electric starting and lighting systems and has built up a business in that work.

Studebaker to Build in Dallas

DALLAS, Nov. 27—The Studebaker Corp. will build a branch house in Dallas. Details of the proposition have not been made public. It is understood that several hundred people will be employed and that the plant will be operated similarly to the one conducted by the Ford company.

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

W. F. Anderson has resigned as vice-president and general manager of the State Motor Co., Nashville, Tenn., and his place has been taken by R. E. Herriges, Jr., who has been secretary of the company since its organization three years ago. The company is King distributor for middle Tennessee.

E. P. Dowse has been made manager of the Cleveland branch of the Federal Rubber Mfg. Co. He succeeds H. J. Couturier, who becomes manager of the company's Minneapolis branch.

H. G. Musgrave has been made assistant director of sales of the Pathfinder Co., Indianapolis.

F. H. Peabody has been appointed assistant manager of the Ford Motor Co.'s Indianapolis branch.

Lee A. Chapman has been placed in charge of local sales of Oakland cars by the Oakland Motor Co., Indianapolis.

Walter Grasser has been appointed assistant manager of the Grasser Motor Co., Toledo, Hupmobile distributor for Michigan and northwestern Ohio.

George W. Squires has become affiliated with the Colonial Auto Co., Indianapolis, Imperial and Marion dealer.

S. Jones has been made manager of the Baltimore branch of the Double Mileage Tire Co. He succeeds Earle H. Ramsdell, who goes to the Rochester branch.

Ralph I. Lemon has become general manager of the Denver Auto Goods Supply Co., Denver.

Fred W. Bartling has been appointed district sales manager for the Hellman Motor Car Co., Cincinnati, Haynes and Saxon distributor.

C. M. Mohler has been made production manager of the Pathfinder Co., Indianapolis.

J. H. Merriken has been appointed manager of the Washington, D. C., branch of the Automobile Tire Co., New York.

C. M. Ennes has been appointed manager for the Apperson-Cleveland Co., recently formed to distribute Apperson cars.

Demingo Monjo has been appointed manager of the used car department of the Kent Motors Corp., New York, Abbott-Detroit and Marion dealer.

R. P. Cartmell, Los Angeles, has been appointed manager of the southern California branch of the Kelly-Springfield Tire Co., to succeed C. A. Jessup, who goes to Cleveland to become branch manager there.

J. G. Griffin, former Los Angeles newspaper man, has been appointed special western factory representative of the Maxwell Motor Co. to cover the territory included in California, Arizona, Nevada, Oregon, Washington, Idaho and Utah. Griffin's headquarters will be in San Francisco.

L. J. Carter has been appointed sales manager for the Peck Auto Sales Co., Studebaker dealer in Grand Rapids, Mich. He was formerly in charge of retail sales for Studebaker in Saginaw, Mich.

R. T. Gray has been appointed advertising manager of the Haynes Automobile Co., Kokomo, Ind.



E. S. BABCOCK
Allen—Wahpeton, N. D.

District Representatives

XXXV

This is No. 35 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

E. S. Babcock, of the Allen Auto Co., Wahpeton, N. D., is Allen distributor for the state of North Dakota. He first entered the motor car industry in Wahpeton in 1905, handling the curved dash Oldsmobile. In 1909 he contracted to handle the Jackson in Wahpeton, and the following year took this car for the entire state and continued that connection until September, 1914. In that month the Allen Auto Co. was formed by Babcock and Frank Eberly and the distribution of Allen cars was taken over.

John F. Plummer, manager of the New York Locomobile branch, has resigned, to take effect Dec. 1. Plummer has been with the Locomobile company practically 16 years, starting with it Jan. 1, 1900, in the factory at Newton, Mass. Later he became a salesman in the New York store; following this he opened the Philadelphia Locomobile business and made a trip to the Orient. On his return he was manager of the Locomobile branch in Chicago, and Jan. 1, 1908, became manager of the New York branch. It is not known yet what new enterprises Plummer will follow. His successor has not yet been appointed.

W. O. Dayton has resigned as chief engineer of the New Era Engineering Co., Joliet, Ill., and has organized a company for the manufacture of light chassis and light worm-drive axles for local and export trade.

H. H. Murden, general manager and engineer of the Knickerbocker Motor Truck Mfg. Co., New York, has resigned, effective Dec. 31.

E. A. Cassidy on Jan. 1 will sever his connections with the H. W. Johns-Manville Co., New York, as general manager of the automobile accessory department to become president of the Edward A. Cassidy Co. The new company will be a selling organization and will market the entire products of several accessory and parts makers. The company will sell solely to jobbers and automobile makers and will have its headquarters in New York with branch offices in Chicago, Detroit, Boston and San Francisco.

C. F. Hurst, who has been district representative for Dodge Bros., with headquarters in Omaha, is now with the King Motor Car Co. in the same position and territory.

Julian C. Case, until recently assistant advertising manager of the Paige-Detroit Motor Car Co., has resigned to become assistant advertising manager of the Scripps-Booth Co.

V. L. Cramer, for the past three years president of the American Distributing Co., Detroit, has been appointed district sales manager in Detroit of the F. S. Carr Co., Boston.

A. E. Culbertson, formerly of Phoenix, is now sales manager for the D. L. Meloy Motor Co., Globe and Miami, Ariz.

T. N. Gretzer, formerly advertising manager of the Hart-Parr Co., Charles City, Ia., has been appointed advertising manager of B. F. Avery & Sons, agricultural implement

and tractor manufacturers, Louisville, Ky.

H. Lee Smith, recently with the Kelly-Springfield Tire Co., St. Louis, on Jan. 1 will become branch manager in Chicago for the Mohawk Rubber Co.

H. B. Shontz, formerly with the C. T. Silver Motor Co., New York Overland distributor, has joined forces with the P. J. Durham Co., Inc., New York, metropolitan distributor for Gray & Davis, Inc., Boston, Mass.

Jack Hiscok has severed his connection with the William G. St. Clair Advertising Agency and has made a new connection with Eugene McGuckin Co., Philadelphia.

A. S. Glichrist has been appointed manager of the Houston district for the Maxwell Motor Co. J. S. Theill has been promoted from the Houston district to take charge of the Dallas office of the company, his district to embrace the northern part of Texas and parts of Oklahoma, Louisiana and New Mexico. L. A. Smith, formerly in charge of the Dallas district, has been appointed superintendent of the sales organization for the territory comprising Houston, Dallas and Little Rock, Ark., districts.

E. W. Cooke, until recently sales manager of the American Tire & Rubber Co., Akron, O., has gone with the National Rubber Co., Pottstown, Pa., as assistant sales manager.

Gas Up to 21 Cents in New York

NEW YORK, Nov. 26—Owners are now paying 21 cents a gal. for gasoline. The tank wagon price of gasoline will be 19 cents, an advance of 1 cent. Gasoline prices in New Jersey range from 20 to 21 cents. A 1-cent rise has taken place in Colorado, Montana and Wyoming, tank wagon basis. This makes the present price 18 cents in Cheyenne and 19 cents in Denver. It has risen 2 cents in Milwaukee in 30 days.

Gas Up 2 Cents in Louisville

LOUISVILLE, Nov. 27—Gasoline prices have taken another jump. The price quoted Friday to motorists was 20 cents, an increase of 2½ cents. The cost as late as the middle of August was 11 cents.

ELGIN TO MAKE 1,000 SIXES TO SELL AT \$845

ELGIN, ILL., Nov. 27—The Elgin Motor Car Corp., organized last spring with a capital of \$1,000,000, will exhibit its first product, in five-passenger and clover leaf roadster form, a six at \$845 at the Chicago show. The personnel of the corporation includes Frederick L. Brown, of Crandall & Brown, Chicago lumber firm, as president; C. S. Rieman, formerly vice-president and general manager of the Service Motor Car Co., vice-president; W. G. Knoedley, president of the Argo State Bank, treasurer, and J. Jerome Kluge, secretary. The directorate includes these and David Schnitzler, branch manager of the Mutual Life Insurance Co., of New York; J. M. Snitzler, president and treasurer of the Snitzler Advertising Co., Chicago, and Dr. A. L. Tull, Chicago. John A. Schroeder, formerly with the Hyatt Roller Bearing Co., is production manager.

The production plans call for an output of 1,000 cars by August 1, 1916, delivery to begin in January and proceed on a graduated scale.

The power plant is a six-cylinder 3 x 4 1/4 block Falls motor with overhead valves. Fuel is taken through a Rayfield carbureter in connection with the Stewart vacuum-gravity feed. The three-speed selective gearset is in a unit with the motor. The wheelbase is 114 in. and tires 32 x 3 1/2, with demountable rims; wire wheels will be given at a slightly additional cost. In the equipment is included a one-man top, ventilating windshield, electric horn, Stewart-Warner speedometer, one extra rim mounted on tire carrier, tool kit, pump, jack and tire irons.

Positive and Midland Consolidate

DAVENPORT, IA., Nov. 27—The Positive Supply Co. and the Midland Supply Co. have been consolidated and the business hereafter will be conducted under the latter name. The Midland company produced the Presteel fireproof paper baler and has also taken over the sales organization of the Moline Pressed Steel Co., manufacturer of pressed steel fenders and other metal parts. The consolidation does not effect the sales force of the Positive company, which produces portable steam vulcanizers and split rim tire removers.

Elcar Price Raised to \$795

ELKHART, IND., Nov. 26—The Elkhart Carriage & Motor Car Co. has raised the price of its 1916 Elcar from \$775 to \$795, owing to several changes in construction.

New Members admitted to N. A. C. C.

NEW YORK, Nov. 15—Three more companies have been admitted to membership in the National Automobile Chamber of Commerce. They are the Denby Motor Truck Co., Detroit; Grant Motor Co., Findlay, O., and Dort Motor Car Co., Flint, Mich.

Fostoria Takes Over Storm Buggy Co.

FOSTORIA, Nov. 26—The Fostoria Light Car Co., recently incorporated with a capital of \$500,000, has taken over the holdings of the Fostoria Storm Buggy Co., capitalized at \$100,000. The company will occupy the entire two-story brick building on South Poplar street, which has been occupied jointly by the two companies and has a 300-ft. frontage on South Poplar street. The building con-

Factory News of the Week

tains 34,000 sq. ft. of floor space. The plant now has sufficient floor space and equipment to turn out 20 cars a day. This number will be put out each day soon after the first of the year. At present the plant is turning out five cars a day. Five types of cars are made: touring, runabout, delivery truck, roadster and coupe.

BUICK TO DOUBLE PRESENT PRODUCTION IN 1916

FLINT, MICH., Nov. 27—The plant of the Buick Motor Co. is to be doubled and for 1917 a production of 150,000 cars is contemplated, or double the production scheduled for 1916. A new motor castings foundry two stories, 470 x 247 ft., with basement, will be put up at once. Additions to the drop forge plant 40 x 200 ft. are under way and further additions will be put up. All other plants making parts and accessories for the Buick and General Motors companies will also be enlarged to increase their output facilities. When the new motor castings foundry is completed the old Michigan Motor Castings plant will become a part of the plant of the Weston-Mott Co. Three hundred Buick cars are now being built daily.

Lockhart Heads Wright Aeroplane

NEW YORK, Nov. 15—Henry Lockhart, president of the Simplex Automobile Co., New Brunswick, N. J., was elected president of the Wright Aeroplane Co., Dayton, O., which was recently purchased by a syndicate headed by W. B. Thompson. T. Frank Manville, president of the H. W. Johns-Manville Co., resigned as president of the Wright company because he found that he could not give sufficient time to the interests of the company. He remains, however, as a member of the executive committee and as a director.

Bell Changes Directorate

YORK, PA., Nov. 26—At a meeting of the board of directors of the Bell Motor Car Co., Nov. 19, a slight change was made in the personnel of the officers of the company, which is now as follows: President and business manager, H. M. Stauffer; vice-president and general manager, H. W. Posey; secretary and treasurer, B. F. Posey; designer and chief engineer, E. T. Gilliard; assistant general manager and sales manager, H. W. Conrad. H. M. Stauffer and H. W. Posey have discontinued all other lines of business to become actively engaged in the management and control of the company.

Hupp Acquires New Plant

DETROIT, Nov. 27—A deal involving \$1,000,000 was completed last week whereby the Hupp Motor Car Co. acquires the plant and property of the American Gear Co., Jackson. Dubois Young, who was factory manager of the American Gear Co., will continue with the Hupp organization in the capacity of general works manager.

NEW \$1,000,000 TIRE COMPANY ENTERS FIELD

SOUTH BEND, IND., Nov. 26—The International India Rubber Corp., with a capital of \$1,000,000, has been granted a charter to manufacture tires. P. E. Studebaker, son of the late Henry Studebaker, is to be president; E. H. Schwab, manufacturer of Bethlehem spark plugs, is to be vice-president; G. W. Odell, formerly with the Toledo Ford Tire Co., Findlay, O., is to be secretary and general manager; J. R. Nobile will be treasurer. The company has opened temporary offices in the Union Trust building and has taken an option of real estate in South Bend for a factory site, it being the intention of the management to erect its own buildings as needed from time to time.

The company, aside from the fact that it is to produce tires, has an unique and original selling plan. A part of the 7 per cent cumulative and protected preferred stock will be distributed at par for the purpose of establishing selling branches. These selling branches will be widely distributed and will be devoted to advertising and selling the product. It is the intention of the company to have, by the time its buildings are erected and its plant is equipped, at least 500 branch establishments.

Sta-Tite Becomes Keys Piston Ring Co.

ST. LOUIS, Nov. 26—The Sta-Tite Packing Ring Co. has changed its name to the Keys Piston Ring Co. and the name of its product to the K-P ring, instead of the Sta-Tite piston ring.

Continental Motor in Empire Six

INDIANAPOLIS, Nov. 27—The Empire Automobile Co. has adopted a Continental model "7 W" motor for its model 60 type for 1916 season—a light six listing at \$1,095. Briefly, the other specifications of the care are: 120-in. wheelbase, floating axle, 34 x 4 tires, streamline body with divided front seats, and complete equipment. Delivery of the cars begins in December.

Ford Buys Newark Factory Site

NEWARK, N. J., Nov. 26—The Ford Motor Co. has purchased a tract of 80 acres near here upon which a large east-ern plant will be established.

Trumbull Company Sees Trouble

BRIDGEPORT, CONN., Nov. 26—The Trumbull Motor Co. went into the hands of a receiver today. Judge E. K. Nicholson was chosen to take charge of the company's affairs. He was empowered to carry on the business until Dec. 10. A hearing will be held on Dec. 3 for the appointment and confirmation of the receiver and for the naming of appraisers.

Bates to Make 2,000 Tractors

JOLIET, ILL., Nov. 27—Extensive additions to the plant of the Bates Tractor Machine Co. will increase the capacity of the plant to permit the manufacture of 2,000 machines in 1916. Orders now on hand aggregate 1,000 machines.

Simplified System

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FORD BUILDING THREE NEW ASSEMBLING PLANTS

DETROIT, Nov. 24—Nearly \$1,000,000 is being spent by the Ford Motor Co. for the construction of three new assembling plants and service stations, in Milwaukee, Omaha, and Oklahoma City. This brings the number of assembling plants of the company to a total of twenty-eight. The Milwaukee plant will be a five-story structure, 300 x 120, will cost \$385,000 and will have a production capacity of 75 cars a day, with a working force of 400 men. The Omaha plant will consist of a five-story structure 284 x 120, to cost \$375,000. About 400 men are to be employed and 75 cars will be assembled a day, if necessary. A four-story building, 275 x 132 ft., will be put up in Oklahoma City, having an output capacity of 60 cars a day with a working force of 300 men. The plant will cost \$230,000. The Wisconsin plant is to be ready in February, also the one in Omaha. The one in Oklahoma is expected to be opened in May. In St. Louis the Ford assembling plant is being doubled and in Kansas City the plant is being tripled.

Marathon Enters Omaha

CUYAHOGA FALLS, O., Nov. 26—The Marathon Tire & Rubber Co. is at present negotiating for the establishment of a warehouse in Omaha. H. H. Replogle has been appointed manager of the Middle West division, with headquarters at Omaha, and shipments from the new warehouse will begin about Jan. 1.

Bid for Premier Plant

INDIANAPOLIS, Nov. 29—A bid for the plant of the Premier Motor Mfg. Co. was filed today with Frank E. Smith, trustee in bankruptcy, by A. J. Schur, an attorney, representing L. Goldstein & Sons, of Philadelphia. The bid offered \$127,500 for the plant. Smith announced Saturday that the plant of the Premier company had been sold for \$125,000 but would not divulge the name of the buyer. It developed that F. W. Woodruff, of Joliet, Ill., representing a syndicate, was the man Smith referred to.

It was announced Saturday that Smith would recommend to Albert Rabb, referee in bankruptcy, that the Woodruff bid be accepted. However, this was before the Goldstein bid had been filed. The matter will come up for hearing before Rabb next Wednesday morning. Schur said he made a cash deposit with Smith as a guaranty that the Goldstein concern would buy the plant at \$127,500 if its bid was accepted.

Schur added that if the Goldstein firm bought the plant it would continue the manufacture of automobiles under the name of Premier. However, they would be lower priced machines, for which, he said, there was a wider market. L. Goldstein & Sons are part owners of the American Motor Parts Co. and the Marion Motor Service Co., of this city, the DeTamble Motor Co., of Anderson, and The Herreshoff Motors Co.

The bid filed by the Goldstein concern was for all of the plant except the real estate, as was the case with the bid of the Woodruff syndicate.



*Indicates sanction by A. A. A.

- Dec. 9.....Des Moines, Ia., Convention, Iowa Retail Automobile Dealers Assn.
- Jan. 7, 8, 10, 11..New York, Meeting National Assn. of Automobile Accessory Jobbers.
- Jan. 25.....Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
- Jan. 26-27.....Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
- Feb. 21-26.....Countrywide Electric Prosperity Week.
- May 13.....New York City, Sheepshead Bay Speedway race meet.
- May 30.....Indianapolis, Ind., Track race meet.
- June 17.....Chicago, Ill., Speedway race meet.
- June 28.....Des Moines, Ia., Speedway race meet.
- July 4.....Minneapolis, Minn., Speedway race meet.
- July 4.....Sioux City, Ia., Speedway race meet.
- July 15.....Omaha, Neb., Track race meet.
- Aug. 5.....Tacoma, Wash., Track race meet.
- Aug. 18-19.....Chicago, Ill., Elgin road race.
- Sept. 4.....Des Moines, Ia., Track race meet.
- Sept. 15.....Indianapolis, Ind., Speedway race meet.
- Sept. 16.....Providence, R. I., Track race meet.
- Sept. 30.....New York City, Sheepshead Bay Speedway race meet.

THE SHOW CIRCUIT

- Nov. 22-27.....Binghamton, N. Y., Annual Show, Binghamton Automobile Dealers Assn., State Armory.
- Dec. 6-11.....Springfield, Mass., Show, Auditorium. H. J. Stacy, manager.
- Dec. 31-Jan. 8..New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
- Jan. 3-9.....New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
- Jan. 8-15.....Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn., Convention Hall.
- Jan. 8-15.....Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
- Jan. 14-22.....Dayton, Dayton Automobile Dealers Assn. Show, Delco building.
- Jan. 17-24.....Wilmington, Del., Second Annual Show, Wilmington Automobile Trade Assn., Hotel Du Pont. J. H. Nixon, chairman.
- Jan. 17-22.....Rochester, N. Y., Show, Exposition Park. C. A. Simmons, manager.
- Jan. 18-22.....Lancaster, Pa., Show, Conestoga Park Pavilion.
- Jan. 18-22.....Baltimore, Md., Show, Baltimore Automobile Dealers Assn., Fifth Regiment Armory.
- Jan. 22-29.....Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.
- Jan. 22-29.....Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 22-29.....Montreal, Can., Show, Montreal Automobile Trade Assn., Almy's Building.

- Jan. 23-30.....Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.
- Jan. 24-29.....Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
- Jan. 24-29.....Scranton, Pa., Sixth Annual Show, Pleasure Cars, Town Hall. Hugh B. Andrews, manager.
- Jan. 29-Feb. 5..Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
- Jan. 29-Feb. 5..Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
- Jan. 31-Feb. 5..Fall River, Mass., Show; Raymond C. Borden, Mgr.; State Armory.
- Jan. 31-Feb. 1-2.Scranton, Pa., Commercial Car Show, Town Hall. Hugh B. Andrews, manager.
- Feb. 7-12.....Kansas City, Mo., Show, Kansas City Motor Dealers Assn., Convention Hall.
- Feb. 9-12.....Peoria, Ill., Show, Peoria Automobile & Accessory Assn., Coliseum.
- Feb. 14-19.....Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
- Feb. 19-26.....Newark, N. J., Show, First Regiment Armory. C. L. Fitzgerald, manager.
- Feb. 20-27.....Grand Rapids, Mich., Seventh Annual Show, Grand Rapids Auto & Accessory Dealers Assn., Klingman Bldg.
- Feb. 21-26.....Louisville, Ky., Show, Louisville Automobile Dealers Assn., Kentucky First Regiment Armory.
- Feb. 21-26.....Omaha, Neb., Eleventh Annual Show, Omaha Automobile Assn. Clark G. Powell, manager.
- Feb. 21-26.....Syracuse, N. Y., Show, Syracuse Automobile Dealers Assn.
- Feb. 21-26.....South Bethlehem, Pa., Show, Coliseum. James L. Elliot, manager.
- Feb. 29-Mar. 4..Fort Dodge, Ia., Fifth Annual Show, Fort Dodge Auto Dealers Assn., Terminal Building.
- March 1-7.....Fargo, N. D., Show, Gate City Auto Show Corp. W. M. Ball, manager.
- March 4-11.....Boston, Mass., Fourteenth Annual Show, Boston Automobile Dealers Assn., Boston Commercial Vehicle Assn.
- March 8-15.....Brooklyn, N. Y., Show, Brooklyn Motor Vehicle Dealers Assn.

Motor Car Securities Quotations

	Nov. 27, 1914	Nov. 27, 1915
	Bid	Asked
Ajax-Grieb Rubber Co., com.....	250	350
Ajax-Grieb Rubber Co., pfd.....	100	101
Chalmers Motor Co., com.....	97	145
Chalmers Motor Co., pfd.....	83 1/2	102
Chevrolet Motor Co., com.....	67	65
General Motors Co., com.....	87	455
General Motors Co., pfd.....	84	113
B. F. Goodrich Co., com.....	23	25
B. F. Goodrich Co., pfd.....	88	111
Goodyear Tire & Rubber Co., com.....	175	185
Goodyear Tire & Rubber Co., pfd.....	97	100
International Motor Co., com.....	..	33
International Motor Co., pfd.....	..	59
Kelly-Springfield Tire Co., com.....	61	64
Kelly-Springfield Tire Co., 1st pfd.....	75	78
Kelly-Springfield Tire Co., 2nd pfd.....	80	85
Maxwell Motor Co., com.....	14 1/2	14 1/2
Maxwell Motor Co., 1st pfd.....	43	45
Maxwell Motor Co., 2nd pfd.....	17	19
Miller Rubber Co., com.....	..	248
Miller Rubber Co., pfd.....	..	100
Packard Motor Car Co., com.....	100	140
Packard Motor Car Co., pfd.....	80	100
Paige-Detroit Motor Car Co., com.....	..	790
Perlem Motor Car Co., com.....	..	22
Portage Rubber Co., com.....	..	65
Portage Rubber Co., pfd.....	..	100
Real Motor Co., pfd.....	..	17
*Reo Motor Truck Co., com.....	10 1/2	11 1/2
*Reo Motor Car Co., com.....	21 1/2	22 1/2
Stewart-Warner Speed. Corp., com.....	47	48
Stewart-Warner Speed. Corp., pfd.....	97	98
Studebaker Corp., com.....	34	38
Studebaker Corp., pfd.....	85	113
Swinehart Tire & Rubber Co., com.....	..	80
U. S. Rubber Co., com.....	44	45
U. S. Rubber Co., 1st pfd.....	94	96
White Co., pfd.....	..	110
Willis-Overland Co., com.....	70	80
Willis-Overland Co., pfd.....	82	112

*Par value \$10; all others \$100 per value.

Learn to Debit

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MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 10

New York, December 8, 1915

Ten cents a copy
Two dollars a year



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Lyddite fell on sales traditions when 600 dealers bought \$22,000,000 worth of the new 3400 r. p. m. Chalmers in 40 minutes. Deliveries now.

Universal Satisfaction

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They always satisfy the millions with their products.

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Why take chances in buying products less known than the BEST?



Price includes bracket, also 10 feet of wire, and an entirely new style of **BIG MUSHROOM BUTTON**, which you can strike with your whole hand, arm, elbow or finger without having to feel for it.

\$7⁵⁰

Stewart Motor-driven
Warning Signal

"The Aristocrat of Signals!"

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The reason is very simple: **CONFIDENCE** in Studebaker.

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I chose Studebaker nearly eight years ago as one of the few companies whose financial resources and manufacturing facilities together with aggressive sales methods insured success in the selling of automobiles.

Exclusive representation of this one line of cars has done so much to build up our business that today we wouldn't even consider any other line of cars.

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Landau-Roadster, 3-pass. . .	1185
Panel Delivery Car . . .	875
Open Express Car . . .	850
Station Wagon	875

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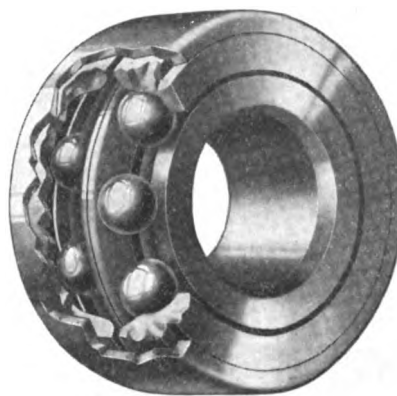
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American Made for American Trade

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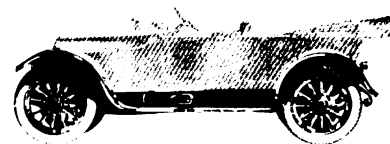
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Touring Car \$1095

Coupe \$1500
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Willys-Knight Model 84 Touring Car
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MOTOR WORLD

JOBBERs, DEALERs, AND GARAGEMEN

Vol. XLV

New York, U. S. A., Wednesday, December 8, 1915

No. 10

The Motor World Simplified System of Accounting

For Dealers and Garagemen—All in One Book, Under One Cover

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Instalment No. 3

Read This First

THE system story last week and this week is on Form 1, the Cash Receipts and Sales Record. It is the Income form. The first instalment described both forms and carried with it two sample forms as a supplement.

Did you save these? You must have them if you are to understand the system.

If you saved them, hang onto them indefinitely. If you install the system the forms will be useful in asking questions in case you have any to ask.

Next week we take up Form 2, the Cash Paid and Expense Record. The big point in these first instalments is to explain the use of Debit and Credit.

Many old accountants don't know today WHY they Debit and Credit. They have done it all their lives and even now don't know WHY.

It is not difficult to understand, because a man who DOES KNOW WHY has made the story simple. You should not merely READ. You should STUDY. Read slowly and carefully — and WATCH THE FORMS.

THE system story last week carried the reader through five of the entries on Form 1 and emphasized Debit and Credit. The entries taken up and to be taken up are:

Last Week

- Entry A—Entering a Cash Sale.
- Entry B—Entering a Charged Sale.
- Entry C — Monthly Storage Charges.
- Entry D—Paying a Charge Account.
- Entry E—Miscellaneous Earnings.

This Week

- Entry F—Making Allowances on Accounts.
- Entry G—Entering Transient Cash Sales.
- Entry H—Borrowing Money on a Note.
- Entry I—Entering Bad Debts. Entering Notes Taken from Customers.
- Entry J—Entering Notes Paid to You.

It will be remembered that the garage we are describing in these articles has those departments that are listed in the subheadings under INCOME ACCOUNTS, Division No. 8. The depart-

ments of the business are in Columns Nos. 9, 11, 13, 15, 16 and 17.

We are doing business on the last day of January, 1915, and are now about to take up an entry that probably is a stranger to the dealer or garageman who has not had a proper accounting system in his business. The transaction is:

Making Allowances on Accounts (Entry F)

In Entry B, you will remember, James Smith had two spark plugs changed. The plugs cost him \$2.50 and the labor on the job came to \$2.25, a total of \$4.75. This \$4.75 was charged to Smith and was taken into the income of the Repair Department and the Accessory and Parts Department. Smith did not pay for it at the time.

But now he drives up and says he wants to pay the bill but that he thinks the charge is rather high for such a little thing as getting a couple of plugs changed. He says he could almost have done the work himself.

The garageman thinks the matter over and explains to Smith that the charge was made in all fairness, that the \$2.50 is the regular price of the plugs to all customers and that there really was \$2.25 of labor done on the car.

But still Smith complains of the amount of the charge. And since he is a good customer, seldom kicks on a

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charge, buys quite a few accessories from the garage and always gets his gasoline there, the garageman figures that he can afford to throw off 50 cents in order to retain the good-will of the customer. This he does, and Smith pays \$4.25 in full settlement of his bill. Now—

WHAT IS OUR DEBIT ENTRY?

Remember the definition that has been given many times in these articles, that Debit means to RECEIVE BENEFIT. Therefore, ask yourself the question: What part of the business received this benefit?

Smith paid cash to us, did he not? And the cash that is received is always Debited under ALL CASH RECEIVED, Column No. 6. So it is CASH that received this benefit, so we Debit Cash. And Debiting Cash, you remember, consists in going to the Debit side of the page, finding the CASH column and making the entry there. So we set down \$4.25 in Column No. 6, the CASH column. And we, of course, write down in the FROM WHOM RECEIVED the name of James Smith. That is our Debit entry—in part. And before making the rest of it let us make the Credit entry.

Credit, you remember, means to GIVE BENEFIT. So you ask yourself the question: What part of the business gave this benefit?

The money came from a customer who had an account with us, so it is CUSTOMERS ACCOUNTS that gave the benefit. You will also be helped in making Credit entries in the case of a customer paying a charged account by remembering that the Credit entry always goes in the last column at the right.

EVERY TIME A CUSTOMER PAYS A CHARGED ACCOUNT THE CREDIT ENTRY IS MADE AT THE EXTREME RIGHT IN THE CUSTOMERS ACCOUNTS COLUMN. REMEMBER THIS.

And right here is an error that is commonly made and which makes the statement of the business false. Smith has paid only \$4.25, whereas he was charged with \$4.75, so the garageman might figure that he should make a Credit entry of only \$4.25. But THIS IS WRONG. And this is WHY.

In making the Credit entry WHEN THE CHARGE WAS MADE, Entry B, you asked: What part of the business gave this benefit? The answer in this case was that it was the Repair Department and the Accessory and Parts Department. Also, it is indisputable that the benefit these departments gave amounted to \$4.75, and \$4.75 has been taken into the incomes of these departments. And if the BENEFIT given was

\$4.75 we must NOW make a Credit entry of \$4.75 regardless of what part of the bill was paid. So we make a Credit entry of \$4.75 in the CUSTOMERS ACCOUNTS column. We Credit CUSTOMERS ACCOUNTS with \$4.75 and write down "James Smith."

The EXPLANATION, which is made with every entry, is that it was "Paying Account."

Now, take notice! We have Debited \$4.25 and Credited \$4.75, have we not? If we let the entries stand this way we would have 25 cents more on the Credit side than on the Debit side, and when we came to add things up at the end of the day, week or month the books would not balance. Double Entry would show us there was something wrong.

We have a difference of 50 cents to take care of on the Debit side, in order

the shop, and since it is an EXPENSE rather than an INCOME, we Debit it to Repair Expense. And you now want to know how you are to "Debit Repair Expense." To Debit, we said, you go to the Debit side, find the account which is to be Debited and set down the item.

In this case you look for a REPAIRS column—and you can't find it. If there were to be very many of these entries a REPAIR column might be added on the Debit side, but there should be few of them, so there is no such column.

It can't go under ALL CASH RECEIVED, can it? And it can't go under CUSTOMERS ACCOUNTS, can it? For it is neither cash received nor an account charged. Therefore, since it MUST go on the Debit side, there is but one remaining place for it—and that is ALL OTHER ACCOUNTS.

So, under ALL OTHER ACCOUNTS we enter "50 cents, Repair Expense, Allowance," meaning that it was an allowance on a repair bill. And now we have \$4.75 on both the Debit and Credit sides and the books will balance.

On Form 2 we shall show how we take care of such items as this allowance of 50 cents. We shall show how this month we set aside a certain sum, known as a RESERVE, to meet just such emergencies.

You will notice that there are two AMOUNT columns under ALL OTHER ACCOUNTS on the Debit side. This is to permit the user of the system to divide these accounts to some extent. There might be but one AMOUNT column or there might be several, but there was room for two on this form so two were made. The garageman might, for instance, list his Notes Receivable in one column and all his other items in the other. Or he may use but one column; it is as he pleases and makes no real difference. As the system is used, however, the operator will figure out uses for both columns. At the start it is perhaps as well to use but one, although on this form both are used.

ALSO, REMEMBER THIS. It is IMPORTANT. This entry of 50 cents is an EXPENSE. Form 1, we stated, is for INCOME, but there are a few such items as this that are an EXPENSE and which are entered on this form. You will, however, learn of them as you proceed with the work.

Note in the Debit RECAPITULATION, which is the name applied to the bunch of figures at the bottom of the form, that there are these items: General Expense, Bad Debts, \$34, and Repair Expense, Allowances, 50 cents." This

The System Will Cost \$12 and Will Include

1 Sectional-post binder, bound in full, genuine gray army duck with heavy leather corners.

1 No. 26 division leather-tabbed alphabetical index.

3 additional special leather-tabbed division leaves.

100 of Form 1.

100 of Form 2.

200 of Form 3.

Extra Sheets

Form 1.....\$1.75 per 100

Form 2..... 1.75 per 100

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that the books may balance. How do we do it? It is a Debit entry, is it not? And Debit means to RECEIVE BENEFIT. So we ask: What part of the business receives this benefit?

This may be a bit puzzling to a beginner, so let us go back a step. The item is 50 cents. It is an allowance on a repair bill, for Smith takes exception to the labor charge and not to the price of the plugs.

Why did we make this allowance?

We did it to retain the customer's good-will and keep him coming to our place of business.

Who, then, gets the benefit of this good-will?

The repairshop, does it not? Smith kicked on the shop's bill, and the allowance "squares the shop" with him.

Therefore we Debit this 50 cents to

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is EXPENSE from Form 1 which is taken into the EXPENSES at the end of the month.

Entering Transient Cash Sales (Entry G)

The gasoline man is out at the pump drawing gasoline for a transient customer and is just starting for the office with the sales slip and the money when a second transient comes along; in order not to keep the man waiting the gasoline pump man fills this second order. He then has two slips, Nos. 106 and 107, and has, let us say, \$5 in his hand or his pocket.

Again he starts for the office when a third transient appears. Rather than keep the man waiting he fills this order and as the transient drives away finds he has three slips, Nos. 106, 107 and 108, and has \$6.40 in his hand.

Anyway, it is about time he made a record of this and turned in the money, for it is not well to delay too long in this matter. However, instead of entering the sales as three sales they are set down as a lump entry of \$6.40 to three transients.

What is the Debit entry? Debit means to RECEIVE BENEFIT. What received the benefit? CASH, of course; so the \$6.40 is Debited to CASH, in Column No. 6, and under FROM WHOM RECEIVED it is sufficient to write "Transient."

Now, what is our Credit entry? Remember, you must NEVER make one entry only. There MUST be a Debit entry and a Credit entry.

Credit, you remember, means to GIVE BENEFIT. Now then, what part of the business gave this benefit? The gasoline tank, did it not? So we Credit Gasoline, which means that we go to the Credit side of the page, find the GASOLINE column, which is No. 9, and enter the \$6.40. We have Debited CASH and Credited GASOLINE.

Herein comes the value of the sales slips. The numbers of the three slips are set down in the G SALES NO. column, No. 10. This proves conclusively that—unless the gasoline man is an awful crook—there were three sales and three only. And if the gasoline man forgot to turn in a slip the omission could be traced and corrected.

Under EXPLANATION we write "Gas (40)," meaning that the three sales totaled 40 gallons of gasoline. By adding the totals on the slips it is possible to know whether their total is 40 gallons and whether the sales at 16 cents a gallon amount to \$6.40.

Borrowing Money on a Note (Entry H)

Let us hope that if you HAVE TO borrow money you can present such a statement of your business that you will have no trouble getting it.

If you follow all the system instruction and Better Business methods that Motor World has presented and will continue to present you can show any banker in a very few minutes just what your business amounts to and what your limit of credit should be.

The garageman whose place of business we are describing wants to expand, and must borrow money. He gets it from J. K. Atwood and gives in exchange a 6 months, 6 per cent note. This is a Receipt of Cash and must be entered on Form 1, which is the CASH RECEIPTS and Sales Record. Inasmuch as it is money coming in, and which will find its

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way to the cash drawer or the bank account, it is plainly Cash Received.

Now, we must make a Debit entry and a Credit entry. What is our Debit entry? Debit means to RECEIVE BENEFIT, so we ask: What part of the business received this benefit? By now this answer is plain. When money comes in it is CASH which receives the benefit, and CASH—you should know it by heart—is Column No. 6, headed ALL CASH RECEIVED. So we Debit CASH. That means that we turn to the Debit side of the page, find the CASH column and enter the \$500 there.

Now, what is our Credit entry? Credit means to GIVE BENEFIT. So we ask: What part of the business gave this benefit? Let us analyze the situation. In order to get this money you took a little piece of paper and wrote on it your promise to pay Atwood \$500 with interest. This paper is called a note. So it was this NOTE which gave the benefit.

Now, in business the notes you owe are always bunched together in your records under the heading of NOTES PAYABLE, so we say that the benefit in this case came from NOTES PAYABLE. We might just as well say the

benefit came from OUR NOTE TO J. K. ATWOOD, but in some things it is well to follow the fashion of the business world, so we shall use the term NOTES PAYABLE.

We are now ready to CREDIT NOTES PAYABLE. We therefore go to the Credit side of the page and look for the place to make the entry. It won't fit under GASOLINE, REPAIRS, PARTS AND ACCESSORIES, STORAGE, CAR SALES, MISCELLANEOUS or CUSTOMERS ACCOUNTS, for it is none of these. You might be tempted to call it MISCELLANEOUS, but you can't do that because it is NOT income, and this MISCELLANEOUS column is one of the INCOME ACCOUNTS, heading No. 8. INCOME is something that some part of your business has earned.

It will fit under none of these headings, but we do find a column headed ALL OTHER ACCOUNTS, and it is for just such entries as this. So we Credit ALL OTHER ACCOUNTS. Under AMOUNT we enter \$500. Under EXPLANATION next to the amount we enter NOTES PAYABLE.

Here is another word of explanation. Across the top of the form the column headings represent parts of the business, but under ALL OTHER ACCOUNTS on both the Debit and Credit sides, the entry that we make in the EXPLANATION column represents the ACCOUNT.

We explained several times before that for every entry there must be an EXPLANATION in Column No. 4, between Columns 16 and 17, so we in this instance write that it is: "Loan, 6 mo. 6% note."

Entering Customers' Notes Entering Bad Debts (Entry I)

Among the CUSTOMERS ACCOUNTS is that of A. T. Woodruff, who has owed \$154 for some time; he doesn't seem to be able or willing to pay. The garageman keeps after him, however, and finally gets Woodruff to agree to pay as follows: One 1-month note for \$50, one 2-month note for \$50 and one 3-month note for \$50. This totals \$150. Four dollars he can't be made to pay at all. The garageman considers himself lucky to get even the \$150.

The account is now considered paid. We have received the equivalent of cash in payment.

What is our Debit entry. Debit means to RECEIVE BENEFIT. So we ask:

DEBIT means to RECEIVE BENEFIT—CREDIT means to GIVE BENEFIT

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What part of our business received this benefit? You might be tempted to say CASH received the benefit, but this is wrong.

You may say: When we get a check it is Debited to CASH, and what is the difference between a Check and a Note? The difference is this: A check is an order to pay while a note is only a promise to pay. There is a big difference. The note cannot be considered CASH.

What then did get the benefit? You should have in your business an account made up of just such items as this; it includes notes which are payable to you. It is called NOTES RECEIVABLE. Every time you get a new note it may or may not be a cause for congratulation on your part, but it nevertheless is a fact that it is this NOTES RECEIVABLE account which gets the benefit.

So we Debit NOTES RECEIVABLE. There is no Notes Receivable column on the Debit side, so it must go under ALL OTHER ACCOUNTS. Therefore, we enter \$150 and under EXPLANATION say "Notes Receivable." We put this entry in the first AMOUNT column, because this garageman wants to keep these notes separate from his other ALL OTHER ACCOUNTS.

What is our Credit entry? Credit means, of course, to GIVE BENEFIT, so we ask: What part of the business gave this benefit? The benefit came from that part of the business wherein we carry the accounts our customers owe us, and this is CUSTOMERS ACCOUNTS. Therefore, we Credit CUSTOMERS ACCOUNTS. Remember, also, we said that when a customer pays a bill the Credit entry is at the extreme right under that CUSTOMERS ACCOUNTS column. Well, this is where this Credit entry is made.

And since we are accepting this \$150 of notes as full satisfaction of the ac-

count, we Credit the whole \$154, the same as we did in Entry F—and for the same reasons.

This, naturally, leaves us with \$4 more on the Credit side than on the Debit side, so how are we to fix things up so the books will balance? Why did we throw off this \$4? We did so because we didn't have a chance in the world of collecting it. We were lucky to get the \$150, let alone the \$4. It is a BAD DEBT.

Do you remember what was said about setting up a RESERVE for BAD DEBTS, and for repair allowances? Well, this is another case where this RESERVE comes in handy. We deduct \$4 from the reserve. And we must make a Debit entry. Debit means to RECEIVE BENEFIT. We must, therefore, find out what part of the business gets the benefit in this case.

The account covers several departments of the business; it is not an allowance made because of a complaint against the repairshop or some other department. It is money that we can't collect. We don't know who is to blame. It becomes an expense, and we call it General Expense. The General or Overhead Department would have suffered if the \$150 had not been collected and the collection was possible only because the \$4 was thrown off, so we say the General Department got the benefit. Therefore, we Debit GENERAL EXPENSE.

There is no GENERAL DEPARTMENT on the Debit side of this form, so we must put it under ALL OTHER ACCOUNTS. Hence (Entry I) we enter "\$4, General Expense, Bad Debts," in the ALL OTHER ACCOUNTS column on the Debit side. We put it on the same line with the \$150 because it is all one transaction. This illustrates another use for two AMOUNT columns here.

Entering Notes Paid (Entry J)

In order to show what is done when one of Woodruff's notes is paid we shall disregard the fact that the note is not due until a month from this date and shall collect it today. The garageman takes the note to his bank, the First National, turns in the note, and the bank adds \$50 to the garageman's account. Even though the garageman never touched a cent of the money it is CASH RECEIVED.

We must make a Debit entry, and since CASH got the benefit of it we Debit CASH. This we do by turning to the Debit side of the page and entering the \$50 under the Cash column which is ALL CASH RECEIVED, Column No. 6. The FROM WHOM RECEIVED is "Collection, First National Bank," because this really is where we got the money. The bank gave it to us and will collect from Woodruff.

Now for the Credit entry. Credit means to GIVE BENEFIT, doesn't it? So we ask: What part of the business gave this benefit? The money came from our NOTES RECEIVABLE account, did it not? We were carrying this and the other notes of Woodruff as NOTES RECEIVABLE and when we collect the \$50 it comes from this account. Hence, we Credit NOTES RECEIVABLE.

There is no column on the Credit side and there is no other place for it than ALL OTHER ACCOUNTS, so it is entered there. We set down "\$50, Notes Receivable (A. T. Woodruff)." In the EXPLANATION column, between Columns 16 and 17, we might make further explanation, but there is little further to be added, so the garageman in this case does not add it. It is well, however, until very familiar with the system to enter always in this EXPLANATION column. We might have written there: "First note, A. T. Woodruff."

Here Are the Answers to the Questions Asked Last Week

Supplement to **MOTOR**

MOTOR WORLD SIMPLIFIED SYSTEM Copyrighted									
CASH RECEIPTS AND SALES RECORD									
ALL OTHER ACCOUNTS			CUSTOMERS ACCOUNTS			ALL CASH REC'D	FROM WHOM RECEIVED		
AM'T.	AM'T.	EXPLANATION	CHARGE AM'T.	NAME					
						12 00	Charles Brown		#1000
			16 00	James Smith					#1001
						2 50	Transient		#1002
						28 00	William Peters		#1003
						19 42	Transients - ⑦		#1004

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What They Say About the System

THE reception accorded to the system is gratifying to Motor World. From all parts of the country and from all sizes of towns have come letters of commendation. And among the writers are many small garagemen who recognize in this system something which meets their needs. Even if you don't use the system let us know what you think of it. Here follow extracts from some of the letters that have come to us:

(Telegram) Express one Simplified System of Accounting binder with index. Five hundred each form one, two and three. Rush, I can't wait.—Isham J. Dorsey, Opelika, Ala.

(Telegram) Can you furnish complete system as outlined at once?—Auto Parts & Repair Co., Springfield, Mass.

I do not know to whom the credit belongs for devising this system, but whoever it is certainly deserves credit, as it is the simplest I have ever seen and the description is so simple that the average garageman ought to be able to put this system into operation with your simple instructions.—L. C. Steers, 518 Garage, Detroit. Secretary of the Garage Owners Association of Michigan.

I have followed your system thoroughly and find it so much ahead of the present system that we are willing to adopt your system at once, beginning with the first of the month. Please ship us this outfit complete at once.—Ish Bros. Garage & Auto Service Co., Findlay, O.

We wish to highly commend your policy of instructing garagemen in an adequate accounting system. We honestly think that at least half of the failures in the garage business is caused by either an imperfect accounting system or no accounting system at all. We refer particularly to that part of the system which has to do with the collection of bad accounts.—Western Motor Supply Co. (Jobber), Minneapolis, Minn.

Please enter our order and ship at once the book used in the Motor World Simplified System of Accounting. We have some 200 accounts and would like to have pages for one year.—Spencer Auto Garage, Charleroi, Pa.

The system is what we have been looking for. We wish to have the material ready so we can start in as soon as the instructions are completed.—Interstate Garage, North Conway, N. H.

It is our intention to install your accounting system by the first of the year.

—Universal Machine & Tool Co., 420 Fourth street, N. E., Canton, O.

This is certainly one of the best things that has been presented to the dealer and garageman by any magazine, and every wide-awake dealer should take advantage of this exceptional opportunity.—L. W. Tucker Co., Wakefield, R. I.

We have noted your announcements of Garage Accounting System and being in need of a system of this kind want it as quickly as we can get it.—Pater-son's Garage, Burdett, N. Y.

Your simplified system of accounting hits the nail on the head. It is the most practical system for a garage I have ever seen.—Bartlett Bros., Chicago, Ill.

We would like to start your Simplified System of Accounting.—Peerless Garage, Conneaut, O.

Please send us at once by parcel post your Motor World Simplified System of Accounting.—Cheeny, Medina, O.

We are very much interested in your Simplified System of Accounting. Could you advise me what the approximate expense would be of furnishing us with an expert accountant to establish a system of this kind in our garage? Our capacity is 125 cars.—City Garage & Sales Co., Pittsfield, Mass.

(We have advised this company that an expert accountant is unnecessary. The garageman can install it himself.—Ed.)

I must say it is just what the garagemen have needed for a long time; please quote me the price.—A. E. Lyle, Armstrong, Mo.

It is certainly of interest to me. Please advise me as to the cost.—Edward S. Curtice, Kay building, Meridian, Miss.

We are much pleased with the first installment of your accounting system and will install it in our business. Please give us prices on the books.—Taylor Motor Co., Weeping Water, Neb.

Your plan of outlining a Simplified Accounting System for garages deserves the highest commendation.—J. C. Thorpe, Urbana, Ill., Secretary of the Garage Owners Association of Illinois.

We have read with much interest your first installments of the simplified system of accounting. It appeals to us very much.—Paul Frank Co., Chicago, Ill.

Please advice the price of your Motor World Simplified System for garages.—T. E. Barber's Up-to-Date Garage, Rochester, Minn.

I am about to open a set of books for a new garage concern and should very much like to know more about your system.—H. A. Eylich, Reading, Pa.

We are very much interested in your

Simplified System of Accounting and would like to know about it at once, and like to install it in our business immediately.—H. T. Cruger Co., Waco, Tex.

We desire to change our accounting system by January 1 and we would like if possible to get the system you have complete at once, so that if we care to use it we can get our forms ordered and be ready by the first of the year.—Dewey & Co., Plano, Ill.

A satisfactory system of keeping garage accounts is a problem we are desirous of solving and we hope we will find our problem solved when we have carefully studied the system you have begun to publish.—Auto Repair Co., East Liverpool, O.

We are very much interested to learn about your System of Accounting. You can rest assured that we will read the instalments, and we hope that it will prove to be of great benefit to us in our garage business.—Bade's Garage, Ford dealer, La Conner, Wash.

When would we be able to purchase a book to use your accounting system?—The Auto Inn, Mt. Vernon, O.

We are interested in this accounting proposition and would like to have some brief data.—Hersh Garage, Elizabeth, N. J.

I am anxious to adopt this system before January 1, and wish the lessons to study the principles before securing the system.—T. M. Hunt Motor Car Co., Independence, Ia.

We are interested in the Simplified System of Accounting and would like to ascertain the cost of the equipment.—Ludington Auto & Supply Co., Ludington, Miss.

We are interested in your announcement of your accounting system for garagemen. We have tried out several systems, none of which has proved entirely satisfactory, and, as we have recently incorporated, would like to start the new company with a simple, easily understood method of accounting.—The Macomber Garage, Danville, N. Y.

I have been reading your description of Forms 1 and 2 of the Motor World's Simplified System of Accounting and am quite interested. Please send me the price of the book.—Hall's Auto Inn., East Jordan, Mich.

Can you inform me where we can obtain a supply of the loose leaves and a binder or cover for the same?—Doran Auto Co., Maquoketa, Ia.

I am very much interested in the system and would like very much to be able to start the first of the year.—A. R. Ellis, De Soto, Mo.

1916 Ignition Systems Operate More Rapidly to Meet High-speed Motor Requirements

Development of Eights and Twelves a Factor—Hotter Sparks Throughout Speed Range—Breaker Construction Improved—Automatic Advance Increases

SCANNING the field of accessories, there is none in which the demand for the highest grade of results has been so keenly felt as that of ignition. Better motors are possible only with better ignition. Higher motor speeds can be attained only with faster action of the sparking device. More cylinders coupled with higher rotative speeds are interpreted to the ignition manufacturer in terms of more sparks to the minute, and this is the keynote of progress in the ignition field during the past year.

More Rapid Operation

In a word, progress in the ignition field can be summed up in the statement that sparking systems can operate more rapidly than ever before. Secondly, the sparks furnished are more intense and hotter throughout the upper and lower ranges of speed. Synchronism, that quality which causes the spark to occur at the same relative part of the stroke, at all speeds, is now possessed by ignition systems to a greater extent than ever before. The use of automatic advance is another growing tendency, and leaving the electrical and entering the mechanical phase of development, the systems of today are more compact, accessible, and ingeniously mounted than formerly.

As a general feature it may be stated that the breaker box mechanism has not been altered in principle, but rather in the mechanical application where the multi-cylinder V-type engine has been taken care of. Many manufacturers have used the same system but have installed a double breaker acting alternately when twelve cylinder demands have had to be met. In such designs the breaker box consists merely of a double set of single breakers operating from the same cam but so arranged that the proper timing synchronism is maintained.

In the breaker mechanism there are two broad classifications based upon the method of operation. These two systems can be classified as the open circuit and the closed circuit. The open circuit keeps the primary broken until at the time of firing a brief make and break is made. With the closed circuit the primary is complete except at the instant of firing, when the circuit is broken and then immediately remade. The open circuit advocates claim the advantage of economy, as the primary is closed for

only a short period. The closed circuit advocates claim the advantage of perfect synchronism, due to the elimination of electrical and mechanical lag.

This broad classification of the breaker mechanisms divides into two groups all the battery ignition systems which are on the market. With both of these types, it is necessary to provide some means for preventing the current from circulating through the primary should the switch be left in the "on" position inadvertently when the motor is not running. This necessity gives rise to in-

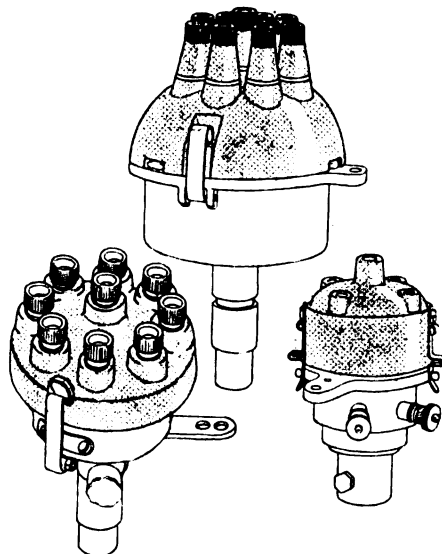
genious contact breaking arrangements and is another feature by which the different makes can be distinguished. The two most popular methods of preventing the short circuiting of the accumulator in battery systems are the throw-off switch and the latch release systems which are used by the representative concerns in this field.

These two methods, which will be described later, are typical of the classes of systems to which they are applied. The throw-off switch, which is operated by a thermostat, is used on the closed circuit design, while the latch release is a part of the action of the open circuit breaker mechanism.

Regarding Synchronism

Regarding synchronism, the open and closed circuit arrangements also cause a difference in the principles by which this quality is obtained. The elimination of lag in the closed circuit method gives the desired constancy in spark timing, while with the open circuit it is attained by representative manufacturers through the means of automatic spark advance which is designed to always keep the spark in its proper relationship to the position of the piston regardless of variation of the motor speeds. The lightening of breaker parts is also a factor in attaining synchronism, as the relative lag with heavier parts would be greater at higher speeds than at low speeds.

With reference to automatic advance there are practically no battery ignition



Three types of battery ignition interrupter-distributor units — Upper, Atwater Kent; left, Remy; right, Connecticut

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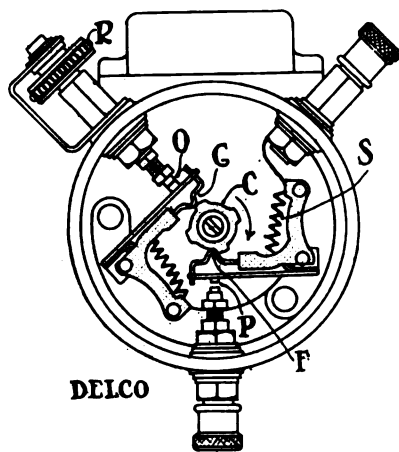
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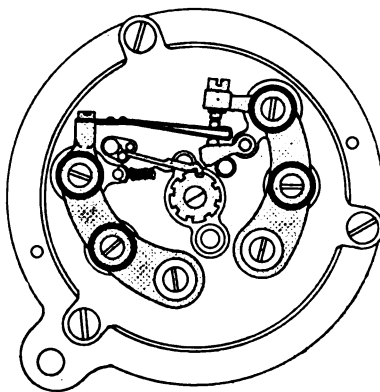
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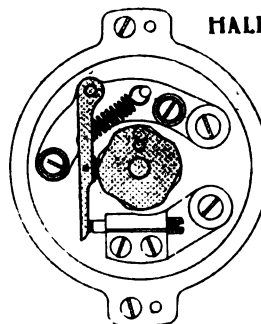
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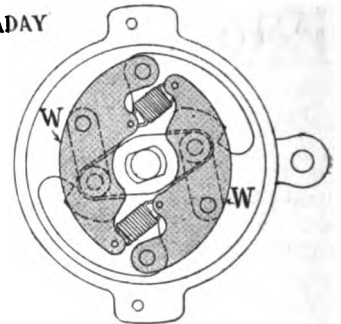
DELCO



ATWATER KENT



HALLADAY



Right—Halladay MacNish breaker; left, primary circuit interrupter; right, automatic advance weights
Left—Two representative exclusively battery ignition mechanisms—The Delco employs twin breakers operated by the same cam. The Atwater Kent has but one breaker

manufacturers who do not believe that its use is an advantage to the driver. Many applications on 1916 cars use both hand and automatic, the automatic taking care of the speed variations while the hand advance can be used for further adjusting the spark if the driver believes it necessary. It is the contention of most ignition experts that automatic advance can regulate the spark to greater advantage than the average driver. There have been tests made on this and the theory has been borne out. In fact, even with fixed spark on magnetos the hotter spark at higher speed has often more than compensated for the lack of advance and produced results which are at least equivalent to those of those obtained by the average driver with manual advance.

Characteristics of All Makes in Detail

Atwater Kent

Probably the most important development this year in the Atwater Kent system is the production for V-type motors of the standard system with a few detailed changes to render possible the greater number of primary breaks. The eight-cylinder instrument is so arranged that the automatic advance mechanism advances only the notched shaft of the

instrument. The high-tension distributor is carried on a central shaft which connects below the governor so that the distributor block is not moved by the automatic advance mechanism. This permits of a wide range of spark advance without affecting the synchronism.

The change in the arrangement of the advance mechanism is the most important on this device, as with the eight-cylinder unit a single pair of contact points and a single distributor are employed. For the twelve-cylinder unit a double breaker mechanism is fitted, but on the eight it has been found that the critical speed of the instrument is in excess of motor speeds that have yet been attained.

Owing to the necessity for cutting eight notches on a single timer shaft, it has been found necessary to alter the shape of the notch so as to secure equal spacing around the shaft without cutting away too much material. The lifter which is operated by the notches in the shaft also has to be altered in form to meet the requirements of the new shape of notch.

The present range over which the standard automatic advance mechanism operates in the Atwater Kent system is 2,400 r. p. m. Above this speed the supplementary hand control is used, and this two-fold control has been adopted because in the belief of the Atwater Kent

concern the big value of the automatic advance is chiefly in the matter of rapid acceleration and at low speeds. With the automatic advance the maximum advance is 45 deg. at 2,400 r. p. m. in terms of crankshaft travel.

Regarding the speed under which the ignition system will operate satisfactorily, it is stated by the Atwater Kent company that the six-cylinder system will fire with undiminished efficiency up to speeds exceeding 4,000 r. p. m. Tests on the maximum speeds of the eight are not as yet available. The automatic advance will take care of the earlier range in attaining the high speed and the hand advance in the upper ranges.

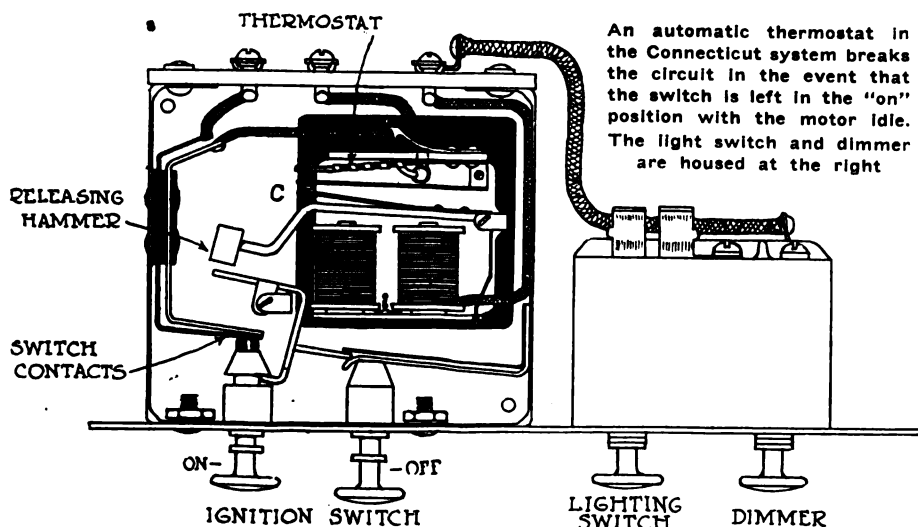
Waterproofing Important Change

Waterproofing the timer distributor has been regarded as important by all the manufacturers. In the Atwater Kent system the condition has been obtained by allowing the insulated secondary terminal to come well up over the secondary wire and the distributor cap is so shaped as to shed water readily. As the position of the distributor is generally quite high, the dangers of flooding this part of the mechanism are practically nil.

At the present time the Atwater Kent ignition system is made in three models, type K-2, with automatic spark advance, made in two-, four-, six-, eight- and twelve-cylinder sizes; type H, for manual control, made only for twos and fours; type C, for single- and two-cylinder opposed motors. In addition, there is a special outfit for Ford cars which is complete with fitting and for other cars previously fitted with high-tension magnetos a standard magneto replacement mounting is provided. This magneto mounting is made with the shaft projecting at both ends so that it will take the place of both clockwise and counter-clockwise magneto.

All these systems are designed for 6- and 12-volt standards. The majority of the outfits turned out are for 6-volt batteries, but either may be secured.

The current consumption of the Atwater Kent system is very low. It is stated, in fact, that the battery may be exhausted to the point where it will



An automatic thermostat in the Connecticut system breaks the circuit in the event that the switch is left in the "on" position with the motor idle. The light switch and dimmer are housed at the right

neither start the motor, nor even blow the horn, yet there will be ample current for several hundred miles of ignition service.

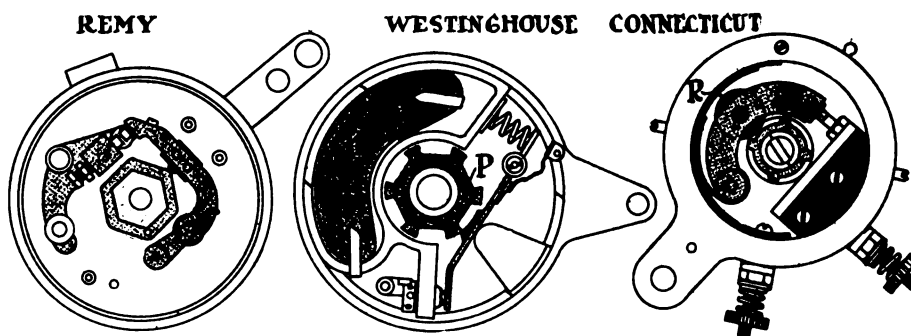
The Atwater Kent system comprises a coil, a combined breaker distributor mechanism and a control switch. In the breaker distributor mechanism on the K-2 model is incorporated the centrifugal governor. With the system, a single spark is delivered at the plug and a mechanism is such that the duration of current flow to the primary winding of the coil remains constant regardless of engine speed.

The circuit breaker normally has its contact breakers held apart and the closing and opening of the circuit is so rapid that it is impossible for the eye to follow the movement of the breaker points. Referring to the accompanying illustration, the shaft S, which is the rotating portion of the breaker distributing mechanism, has four, six or eight notches, in accordance with the number of cylinders. The lifter T catches in these notches and is drawn around with the shaft a minute distance. When it escapes from the notch it rides up slightly on the round surface of the shaft and jumps back to its normal position by the tension of the coil spring P. As the lifter T jumps back it strikes the hammer H, which in turn transmits the blow to the flat spring F, bringing the contact points together for a minute period of time. This gives the contact and breaks it in such a short space of time that the eye cannot follow the closing of the circuit.

All of the parts which are subject to contact are made of hardened steel, the contact points themselves being made of tungsten, and one of the features of the system is that these points are protected by a switch which reverses the direction of the current flow every time it is turned on. The adjustment of the contact points is made by the removal of shims from beneath the head of the adjusting screw which carries one of the points. It is impossible for the points to remain together and therefore impossible for the battery to be exhausted should the switch be left in the on position.

Connecticut

Electrically, the Connecticut battery ignition system operates on an entirely different principle from the Atwater



Variety in battery ignition breaker mechanisms—All three operate on the closed-circuit principle, the current flowing continuously until broken by the separation of the contacts. In the Westinghouse, a stop, P, permits the rotation of the shaft in the opposite direction a short distance without separating the contacts

Kent. The Connecticut is the exemplification of the closed circuit system, whereas the Atwater Kent uses the open circuit.

The Connecticut outfit comprises an interrupter and distributor unit, a high-tension coil and a switch. All of these units are unique and distinctive and represent the embodiment of principles which must be carried to a high degree of perfection to meet the rigid demands of the up-to-date high-speed motor.

Operating on the closed-circuit system, the primary circuit is only broken at the contact points when it is necessary to generate the ignition spark. The advantage claimed for this is that the primary circuit of the coil is allowed to become completely saturated before the breaking point is reached, and therefore the spark of maximum intensity is produced when the circuit is interrupted.

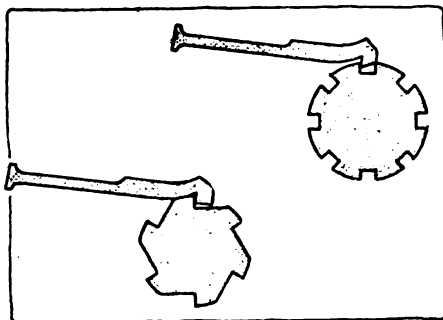
Another advantage which is claimed for this system is that both electrical and mechanical lag are eliminated throughout the entire range of motor

speed, and the makers state that the eight-cylinder igniter will fire perfectly at a motor speed of 3,000 r. p. m. with the single breaker arm. This means that the igniter is producing satisfactorily 12,000 sparks per minute, or 200 sparks every second.

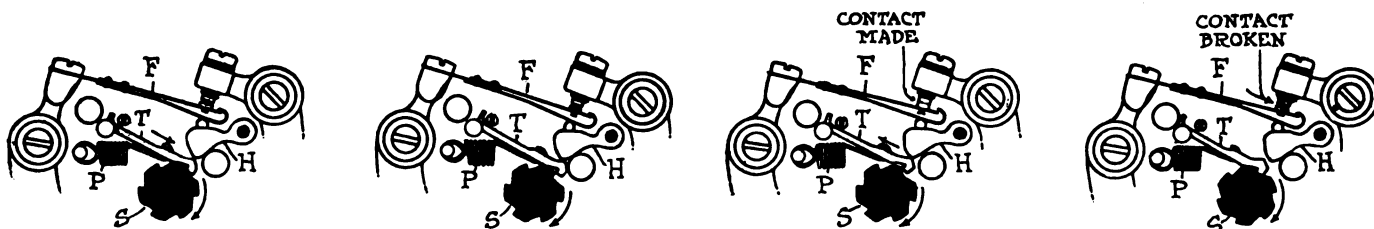
The reason the claim is advanced that in this system both electrical and mechanical lag are eliminated is that the instant after the spark has been made by the interruption of the primary circuit, the contact is again made, and all during the time which elapses between sparks the current from the battery is allowed to flow through the primary of the coil. Since the current is flowing, it does not have to be made, and therefore there is no possibility of electrical lag until the speed at which the timer shaft is revolved becomes so high that the lapse between sparks is inappreciable. Owing to the velocity of an electrical current, however, this speed is far above the requirements of automobile motors, and for all practical purposes electrical lag in this system does not exist.

Mechanically, lag is eliminated for much the same reason. Whereas on the open circuit principle contact has to be made and broken, on the closed circuit it merely has to be broken, as it has been remade immediately after the previous break. The simple action of breaking the contact can be performed by means of a cam without noticeable mechanical lag.

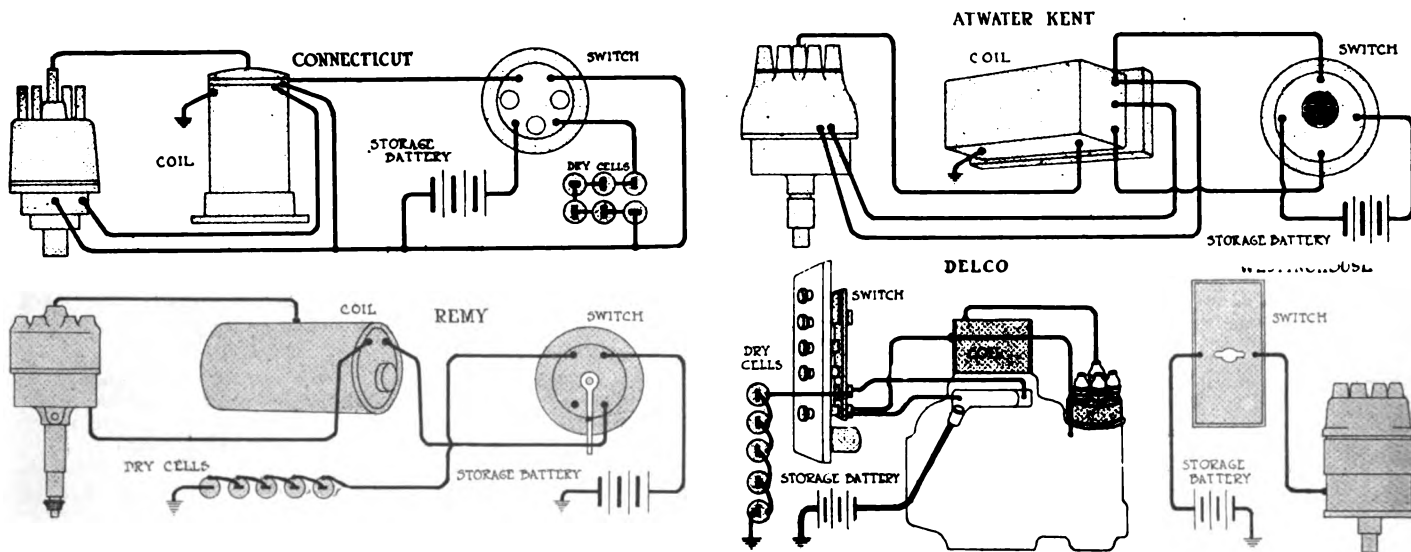
This elimination of lag results in the attainment of almost perfect synchronism. Photographs exposed for 5 min. on a dial representing a complete circle and calibrated to show degrees of crankshaft travel bring out the fact that there is



Breaker cams used on six- and eight-cylinder. Upper illustration shows Atwater Kent cam and lifter for eight-cylinder motor. The old type is shown in the lower view



Four diagrams illustrating the operation of the Atwater Kent breaker mechanism: The first shows the cam S rotating and thus drawing the lifter T to the right; the second shows the lifter just about ready to release; the third shows the lifter flying to the left impelled by spring P and striking hammer H; the fourth shows how contact is made by the hammer



WIRING DIAGRAMS OF THE PRINCIPAL BATTERY IGNITION SYSTEMS

Regardless of the seeming complexity of the wiring on a car, this may easily be understood by reference to these diagrammatic illustrations. All cars equipped with these systems are wired as shown herewith and all the wiring can be easily traced

less than a degree variation in the position of the spark anywhere between 100 and 3,000 r. p. m. In other words, for any given position of the spark lever the spark will occur in the same position as regards piston travel at any engine speed.

The mechanism of the breaker consists of an arm carrying one contact piece, the stationary block carrying the other contact, an insulated roller R which is carried by the arm, and the cam which is mounted upon the driving shaft in the center. Upon the cam there are as many points or high spots as there are cylinders on the motor. Normally the two contact points are held together by the action of a light spring upon the arm. When one of the high spots corresponds to the firing point in one of the cylinders lifts the roller, the circuit is broken and a spark produced. For a four-cylinder motor the cam high spots are 90 deg. apart; for a six they are 60 deg., and for an eight they are 45 deg.

The Connecticut switch is very distinctive in the employment of a thermostatic circuit breaking arrangement which prevents the battery from being exhausted should the driver accidentally leave the switch on the "on" position when he leaves the car. It is an electro-mechanical device so arranged that the battery switch button is thrown back into the "off" position if the switch is left on by accident. During the year a new form of switch has been brought out which houses the thermostatic device in a square casing instead of the cylindrical one in the older model. The principle, however, is exactly the same.

The method of operating is by utilizing the properties of the thermostat which becomes warm from the current of the battery and moves downward, making contact with the point C. This completes an electric circuit which ener-

gizes the magnets in the solenoid coil, causing the arm to operate like a bell hammer or buzzer. This arm drives against a plate, which in turn releases the button in the switch which is depressed. This breaks the battery circuit and prevents exhaustion.

The distributor unit is of conventional design, but the contact between the distributor rotating member and the distributor points may be either by brush, as in a wiping contact, or a gap, which the high tension current jumps may be used.

Delco

Although the Delco installations vary on every car upon which they are furnished, the underlying principles are very much the same. In a great majority of the Delco systems the single unit machine, that is, combined motor-generator for starting and lighting, is used, and with this is provided an igniter unit. In many cases the igniter unit is not included with this, and in still other installations separate ignition units are furnished either in or not in combination with separate motor and generator. This gives a very broad line and one which of necessity causes slightly different designs to meet the needs of the case.

The Delco breaker mechanism operates on the open circuit system; that is, the primary circuit is broken at the points except during the brief interval in which contact is made at the time the spark is required. The breaker mechanism is operated by a cam on the central shaft, this cam having as many points as there are cylinders on the motor. The spring which holds the contact points apart during the operation of the motor between sparks holds the follower against the cam and also acts as the operating unit in separating the points on the break.

With this breaker mechanism it will rarely happen that the motor comes to rest with the follower on one of the points of the cam, but should it do so this would leave the primary circuit complete and would cause current to flow from the battery. Were some means not provided to check this current, the battery would be exhausted. The means taken is an automatic resistance unit which is cut into the circuit should the cam follower come to rest upon a point of the cam, leaving the primary circuit complete.

The resistance unit is a coil of high resistance wire wound on a porcelain spool and generally mounted on the distributor housing. Under ordinary conditions it remains cool and offers little resistance to the passage of the current. However, if for any reason the primary circuit remains closed for any considerable length of time, the current passing through the coil would heat the resistance wire to a point where little current could pass, thus insuring against a waste of current from the battery and damage to the ignition coil and timer contacts.

Referring to the illustration, the operation of the breaker mechanism is readily understood. As the cam C rotates, it lifts at each of the high spots the follower F, bringing together the points P. After passing the high spot the points are separated by the action of the coil spring S. The follower G is so arranged that the circuit through the points O will be broken when that at the points P is complete, thus throwing into circuit the resistance unit R when it is needed. In another form of breaker used, the resistance unit is directly in connection with the one set of points and comes into action when the flow through the resistance coil becomes constant instead of intermittent.

The ignition coil on the Delco system

is mounted in various positions on different cars and the switch also varies according to the installation.

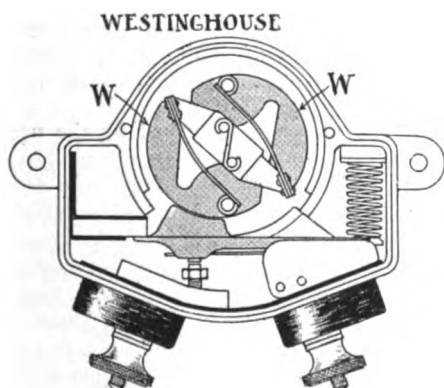
Remy

The Remy battery distributors are the same as this concern has been making for the past three years, although in detail a few changes have been made to meet the changing requirements in motor design. For the eight-cylinder V-type motor a single breaker arm with an eight pointed cam is employed, and for the twelve-cylinder V-motor a distributor which has two breaker arms is used. Both of the breaker arms on the twelve are positively actuated by the same chrome nickel steel cam, the breaker arms are superimposed so that any looseness in the bearing of the distributor will not affect its synchronism, but one coil is used in connection with the twelve-cylinder distributor.

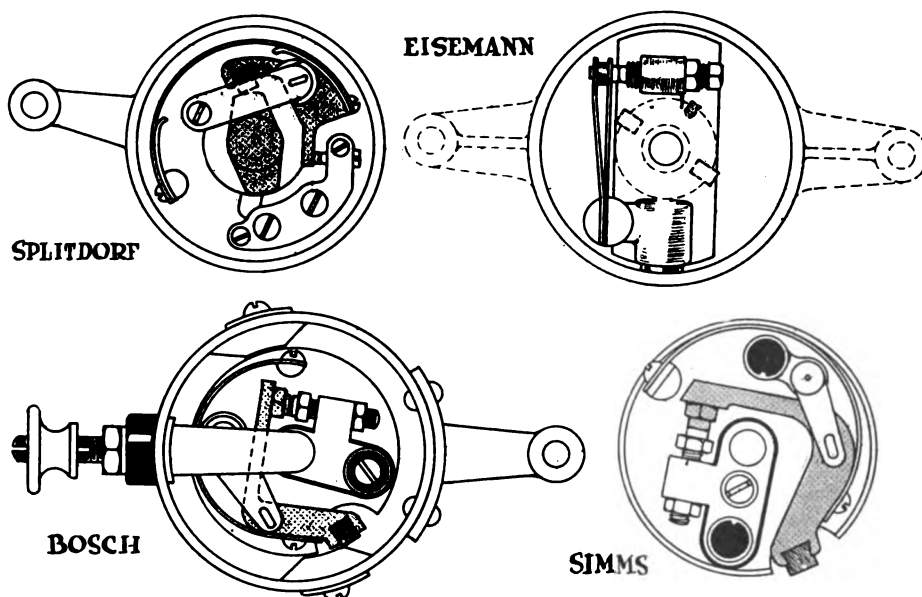
In order to secure maximum speed in the breaker mechanism the weight of the breaker arm has been decreased by making it of pressed steel, and in order to secure a very fast but smooth break, a rebound spring has been added. The pressed steel arm was used in a few of the 1915 distributors.

The Remy is another example of where the details of design vary with practically every installation. The range of advance is a good example of this. For example, on the Chalmers 35 the distributor has a 50 deg. advance. On the Oakland 32, a 40 deg. advance; on the Reo 4, a 44 deg. advance, and on the Reo 6, a 60 deg. advance, etc.

The advance in motor speeds has not caused any change in the principle of breaker mechanism on this system, as on road and block tests the limit of efficient spark production has not been reached in practice. The cam faces are ground, and inasmuch as a spark occurs at the opening of the points, synchronism is maintained regardless of engine speed.



Automatic advance is a feature of Westinghouse Ignition, the weights, W, governing the automatic advance pushing the fiber part known as the bumper and allowing the interrupter contacts to close. As the speed of the motor increases the weights are thrown out and automatically advance the time of opening and closing the contacts



Magneto breaker mechanisms are not a great deal different from those of the various battery ignition systems. Few changes have been made in this apparatus as a rule. All magnetos have been found quite capable of caring for the needs of the modern high-speed motor without modification

This system operates entirely on the closed circuit principle, the points being knocked apart by the cams, which rotate at half engine speed.

The Remy battery ignition system differs from others in that the advance and retard mechanism is entirely separate from the distributor cover. When the timing lever is moved the cover remains stationary, obviating the necessity for moving the wires and avoiding the possibility of chafing the insulation.

Westinghouse

Automatic spark advance is one of the features of Westinghouse ignition. This automatic advance operates over a range of 45 deg., but provision is also made for manual operation. The spark lever, however, need not be touched when running if it is not desired.

The principle upon which the system operates is the closed circuit, and the centrifugal weights are a factor in the interruption, the operation of the ignition system beginning with the making of the primary circuit of the coil when the centrifugal weights governing the automatic advance push down the fiber part known as the bumper, allowing the interrupter contacts to close. This sends the primary circuit through the core of the coil. At the time the spark is desired, the contact points are suddenly released under the influence of the bumper spring and the spark is made.

As the speed of the engine increases, the weights are thrown out from the center and automatically advance the time of closing or opening the interrupter contacts and hence advance the spark. At the same time, due to their shape, they keep the contacts closed during a greater part of the revolution when running at high speed, thus making the

period of contact practically the same for all speeds and preventing the spark voltage from falling off at the higher rate. This in a way combines the advantages of both the open and closed circuits.

A separate ignition system is also marketed for systems that do not contain timing, distributing and high-tension parts. It has the same type of circuit breaker as that just described except that there is no automatic spark advance feature. The interrupter on this is equally efficient running in either direction.

The Westinghouse distributing mechanism is of the usual flat-faced type, but is specially designed so that the detachable distributor plate can be readily placed in position without interfering with the contact brushes and without the use of tools.

In many of the installations the ignition coil is made an integral part of the generator, giving an arrangement which is very similar in compactness to that of a magneto. The coil is solidly imbedded in the insulating material of the distributor plate and all connections are made automatically by putting on the distributor plate and inserting the holding screws without the use of tools. In this way, no wiring is required between the generator and coil.

There are several types of ignition switch which are standard. The one most used is the snap type, combining in the same face plate the ignition and two lighting switches. The direction of current through the interrupter contact is reversed every time the switch is turned on, which reduces the wear on these points.

L. P. Halladay Co. is making a special design of the Mac Nish ignition system for the eight-cylinder high-speed engine.

this system being an innovation this season. The breaker lever in this eight-cylinder design is faster than former models and the coil is especially wound to give the rapid action necessary for the multi-cylinder motor running at high speed.

In principle the eight-cylinder design does not differ materially from the six or the four. The same scheme of current regulation, which is mechanical and requires no adjustment, is used, and the same positive breaker action being employed. Both hand and automatic advance is supplied on this system and the machines for eight-cylinder cars are guaranteed to work perfectly at 3,500 r. p. m., or, in general, at speeds higher than are reached by the commercial eight-cylinder engine either on the race track or on the testing stand. The Hal-laday system operates on the open circuit principle.

The 1916 MacNish models are made for four- and six-cylinder cars with automatic advance, for four- and six-cylinder cars with hand advance and eight-cylinder with automatic. There is also a special fitting for the Ford and the machine may, of course, be adapted to a large number of cars having vertical timer shafts. The coil is regularly wound for 6 volts and may be used with dry cells. It is possible also to operate this system from the generator if the battery fails. The coil is cylindrical and is adapted for attachment to the dash, engine or generator.

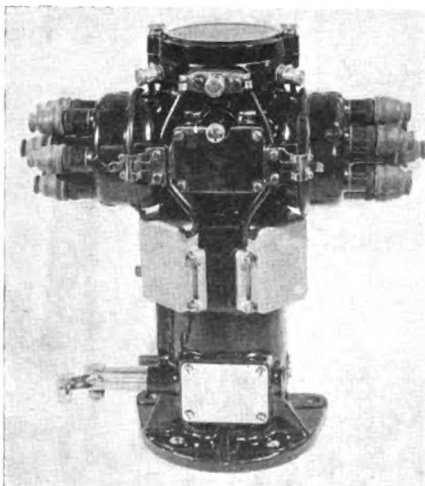
Bosch

Magneto design has been fairly well standardized for the past few years and only the introduction of new types of distributor and breaker mechanism to meet the demands of eights and twelves have caused any innovations in the field.

The Bosch line for motor cars now comprises principally the N-U 4, D-U 4 and the Z-U 4. For heavy duty work there are the Z R and Z types; for the six-cylinder cars the same line is used only known as D U 6, etc.; besides these there is the Bosch vibrating duplex outfit, which has become standard on several makes of cars for this year.

With this complete line, every zone of motor design is covered; the smaller four can be taken care of by the N-U 4 magneto, which was brought out about one year ago and is fitted regularly on some of the smaller displacement fours. For intermediate fours the D-U 4 and Z-U 4 are used; the letter Z in Bosch nomenclature stands for waterproof construction and in general a Z magneto has replaced a D of the same general design except that it is not impervious to water.

The N-U 4 is a distinctive small car design in which the aim has been to reduce weight while at the same time providing an efficient and hot spark. The



Delco Ignition unit as fitted to the Packard twin six. Note two complete distributors. Principle is the same as on Delco units for fewer cylinders

lightness has been secured by the elimination of the distributor as an independent part and the work of the distributor has been turned over to the slip ring, which in this design is double instead of single and which has two grooves into which bear four brushes in sets of two. Each groove has two brushes at a distance of 180 deg. apart. In these grooves are imbedded two metal segments, each at 180 deg. apart, taking the place of the distributor and passing the high-tension current to the brushes, from which it is taken directly to the plugs.

With this arrangement two sparks are provided for a revolution, and once the magneto is driven at crankshaft speed there is an ineffective spark one revolution behind the effective spark, so that in timing care has to be taken that the inlet valve is not open when this spark occurs and that the exhaust is preferably still open.

The Bosch vibrating duplex ignition system offers a simple and positive method to permit easy starting. It is recognized that in the magneto the armature shaft must reach a certain speed before the magneto output is up to normal. At this time also, the effects of inferior gas mixtures due to low grade fuel renders necessary a good spark. With the vibrating duplex system a low-tension vibrating duplex coil is thrown into connection with the primary winding of the regular high-tension magneto, providing a hot shower spark at the low speed. When running at the normal speeds the vibrating coil is thrown out and ignition is provided entirely by the magneto.

The principle of operation is that the battery current upon reaching the coil terminal with which the coil winding is connected, passes through the winding to the iron core, thence to a flat vibrator spring with its contact, then to the ad-

justable vibrator screw, and finally out of the coil by means of the second terminal. When the complete battery circuit is established, the coil winding acts as an electro-magnet, giving a vibrator action, causing the intermittent spark. The switch permits of an "off" position in which the battery circuit is interrupted and the magneto is grounded, next a battery position in which the switch connection between the magneto and ground terminals is interrupted, affording the battery current a direct path to the grounding terminal of the magneto. Besides, there is a magneto and a coil and magneto point. This permits of starting with the vibrating duplex system and then switching to the magneto.

The other Bosch magnetos are high-tension designs with the Bosch breaker and distributor plates which have been used for some time past.

Remy

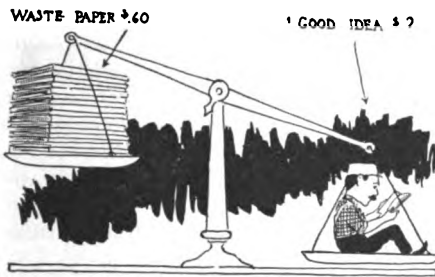
Remy magnetos are marketed under the model names of P, 30, 31 and 32. These instruments are all of the shuttle or H-shape armature type, which are designed to produce a dynamic spark at low armature speeds. The Remy model P is designed for ordinary automobile use, and 31 is also for passenger car service, while models 30 and 32 are for trucks and tractors. The model P is a single distributor instrument for single point ignition and the 31 has a double distributor for two-point ignition.

The armature of the Remy magneto carries only the low-tension winding. The coils for producing the high-tension current are separate and are generally mounted behind the dash. The switch is in a unit with the coil and in general practice projects through the instrument board. In the construction of these magnetos the armature is made up of layers of soft Norway iron to secure maximum permeability. The armature heads are made from hard bronze and the shaft is cast integrally with the head, providing a rigid construction with the two different metals joined to provide minimum weight.

Waterproofness is secured by the use of a new design of Bakelite cover plate, which also excludes the dust from the distributor parts. The terminals, which are fastened to the outside of the cover plate, give an exceptionally accessible layout. Timing is simple on this magneto, as by means of a timing button the circuit breaker can be brought to the proper position to indicate the break in the primary circuit. In timing, the engine is turned over until No. 1 cylinder is on top center on the compression stroke. At this time the button at the top of the distributor is pressed and the magneto shaft is turned until the plunger of the timing button drops into the recess of the distributor gear. In this

(Continued on page 34)

Why Not Let Shop Men Read the Trade Papers?



"Where do you get off with your sixty cents for waste paper?"

REILLY had just had his shoes soled and heeled and his heels came down heavily as he walked in the door and across the floor of Henry Bennett's salesroom toward the little 6 by 8 office in a rear corner where Henry always cooped himself up and figured out how much money he didn't make last month. He always made some—and that's about all.

Henry was even now in the midst of his figures. One of his big troubles was that he always did most of his figuring after it was all over. He worked like a man who rides \$6 worth on a railroad and then gets off and asks where he is.

To Reilly's notion, Henry was more or less of a piece of cheese—not a very large piece. Reilly had been trying for many moons to get Henry started on the road to Better Business and Greater Profits, but each time Henry got up to the tape and all ready to start he saw something interesting over the fence and forgot he was going anywhere.

Henry Was Figuring

But Henry was still on one of the committees of the Callawassa Motor Trade Association, and Reilly visited him now and then to see how much Henry's enthusiasm as a committeeman had waned since the Sennett dealer's last visit.

"Figuring, Henry?"

Reilly sat down unnoticed by the Redman dealer, who kept right on with his wasting of sheets of paper. He flipped two more into the waste basket before he looked up.

"Hello, Reilly."

"Yes, I guess so," added the little man of but sparsely covered pate. "Committee meeting this noon. Are you coming down to Pierre's?"

"Committee meeting? Committee meeting?" exclaimed Henry. His tone indicated that he was a very busy business man and had entirely forgotten about it. The latter part of it was correct—he had forgotten about it.

Henry was still looking busy and Reilly let his eye ramble around. He always did this in Henry's salesroom. "What's the idea?" he asked, pointing to a big waste basket full of trade papers.

One Good Idea in the Shop Is Worth Many Pounds of Waste Paper

By Ray W. Sherman

There were more on the table and more under the table.

"Sixty cents a hundred," said Henry.

"Sixty cents a hundred," exclaimed Reilly.

"Yes, sure! I sell 'em to the paper mill."

"You do?"

"Sure, don't you?"

"To tell the truth, Henry, I don't seem to have any to sell. They disappear."

A Money Loss?

"You ought to watch that leak, Reilly," asserted Henry. "You're losing a lot of good money every year."

"How much?" challenged the Sennett dealer.

"Well, let's see." Henry picked up a trade paper and set it on his letter scales. He squinted at the dim reading. "Ten



"They took them home. If they do that I never get anything for them"

wrong!" interrupted Reilly. "You are throwing a good investment out your own back door. You are selling an asset for sixty cents before you have gotten its full value. Why don't you let the men in the shop read these papers?"

"I tried that once," triumphantly answered Bennett, "but they wouldn't bring them back. They took them home, or lost them. If I do that I never would get anything out of them."

Reilly's answering tone was contemptuous. "Why do you buy these trade papers?"



"A gang of men that swipes trade papers on the boss is the kind of gang he needs. They are an asset, not a time-killing liability"

ounces," he added. "Fifty-two issues a year. That's five hundred and twenty ounces. That's—" he figured—"thirty-two pounds. I get three papers. That's—let's call it a hundred pounds. That's sixty cents a year that I get and that you throw out the back door."

"I challenge you on that last statement," retorted Reilly. "You are losing, not making, money. And I don't throw them out the back door. To start with, I haven't any back door and in the second place there is no waste paper in my back yard."

"Oh, well, if you put it that way—"

"Your dope is wrong, Henry, all

"Oh," jauntily answered Henry, "everybody buys trade papers. It's the fashion, I guess."

"No wonder you sell them for, sixty cents a hundred! Why do you buy coal, Henry?"

"That's a foolish question!"

Another "Foolish" Question

"Yes, I know it is," answered Reilly. "And now let me ask a less foolish question. Do you sell the coal that falls on the floor around the heating plant and do you sell the ashes when they are full of good coal? And do you sell the coal for less than you paid for it?"

"And that's another foolish question, Reilly. What are you getting at?"

"Just this!" Reilly hitched up in his chair and became earnest. "No matter why you buy these trade papers, Henry, they are made because there is a need among us dealers and garage people for something that will keep us up to date and will give us ideas that are valuable to us in our business. And that is why the wide-awake dealer buys trade papers—and after he buys them he reads them. He gets every last idea there is in them—and if they're good he uses them. Until you have gotten for yourself and your business the ideas and information that is in these papers you have not gotten full value from them. You surely have gotten out of them all you paid for them but you haven't gotten all that is in them.

The Boys in the Shop

"But let us assume that you read them every week—which you don't. And let us assume that you yourself have no further immediate use for them. The boys in the shop, Henry, are one of the most important parts of your business, and you can make your business better in many respects by letting the boys out back have the benefit of the ideas that are in these papers."

"Bah! Boys in the shop! Ideas!" exclaimed Henry.

"I suppose you figure that they haven't any brains, and that they wouldn't know a good idea if they saw it."

"Something like that," added Henry, as he lighted a cigarette.

"Well, let me tell you something, son. I've been in your shop and I know a thing or two about some of the boys out there, and you have some of the best lads in the repair business in this town. You know yourself that they have worked out several little devices for saving labor and have thereby cut down the cost of work in your shop. If a mechanic is smart enough to do that, Henry, he is fully capable of becoming a better mechanic. He can make good use of the ideas of other men that are presented in these papers. He, by making use of these ideas, makes your shop a better shop and saves you money.

"Did you ever think of that?"

Is It Worth It?

Henry's No was a thoughtful No.

"If one single labor-saving device that is adopted by your men saves you seventy-five cents in one year, where do you get off with your sixty cents for waste paper?"

Henry said nothing. In fact, there was little to be said.

"It isn't as if the boys in the shop were not interested in these things. They are. You said a few minutes ago that you used to let them take the papers but that they never brought them back. You

ought to be glad of it. A gang of men that swipes trade papers on the boss is the kind of gang he needs. They are an asset, not a time-killing liability.

Use Common Sense

"You spend a lot of time figuring on how to make money in your business, Henry, but you don't use common sense. System, brilliancy and everything else are absolutely useless if there isn't a germ of common sense to go with them. Why couldn't you see that it was an advantage to have the boys in the shop read these papers? Why did sixty cents a year look

bigger to you than one time-saving idea in the shop?"

"I don't know! I don't know!" Henry waved both hands at Reilly and turned his head away. "Don't ask me! Every time you come down here you stick your nose into my business and get to asking me questions I can't answer. If you and I hadn't played baseball in the sand lot when we were kids I would have swatted you long ago."

"But that committee meeting—" smiled Reilly.

"Yes, let's get to it!" Henry reached for his hat and coat.

What Is Your Per Cent of Overhead?

Ad Man Submits a Form on Which You Can Fill in Your Own Figures

"Overhead expense," said T. I. Stoner, secretary of the Stoner-McCray Advertising System, Des Moines, in an address before a recent meeting of the Iowa Automobile Business Association, "is a subject that the average business man gives the least careful analysis of any division of his business, and if he only appreciated the relation it has to a successful business he would give it the most careful attention.

"Overhead is the connecting link between the cost of the material and the selling price—that is, the cost, plus the overhead, plus the profit determines the selling price; therefore, it is the Life of the Business.

"It is surprising how many merchants there are who are not conversant with the proper method of application of overhead expense to the cost; i. e., the proper basis to use in applying same; for instance, a merchant of years of experience explained his method in this way:

How He Erred

"He said his overhead was 20 per cent and on an article costing 80 cents on which he wanted to make 5 per cent net he used this illustration:

Overhead 20 per cent
Profit 5 per cent
Total 25 per cent

"Taking 25 per cent of the 80 cents equals 20 cents, added to the 80 cents equals \$1, the selling price. Don't you see he was not making a cent, and if it were not for the fact that other departments of his business carried larger profits than this one the sheriff would have gotten him long ago.

"What he should have done was to take 25 per cent of the selling price, \$1, which would be 25 cents, and add it to the cost, 80 cents, making \$1.05, the selling price, which would net him the 5 per cent which he thought he was getting.

"The average gross business or selling price is the only thing you are sure of in business and therefore it is the only basis upon which to estimate your per cent of overhead and profits.

"A successful business consists:

"1. Of a scientifically applied overhead expense, which, to a large extent, regulates the service you render.

"2. Service, which represents the success or failure of any business, and is the saving element of the average dealer, and it should represent the personality you inject into your business to meet the difference in price between you and the mail-order house or large dealer.

Fill in the Figures!

"3. Reliable merchandise, which affects your overhead, as there is less depreciation, less expense to sell, and it gives the dealer a standing in the community, which is a good advertisement.

"I submit herewith the form we use:

OVERHEAD EXPENSE

Interest on Capital Invested..... \$...
Depreciation of Stock and Equip... ..

FIXED CHARGES

Owner's Salary \$...
Rent
Light
Water
Phone
Insurance and Taxes.....
General Expense
Advertising
Freight and express.....
Office Expense
Salaries which you cannot charge direct to customer
Supplies
Dray
Discount Allowances
Gross Business
Capital Invested
Total Per Cent Overhead.....

Dealer's Legal Status

Although Illinois Has No Garageman's Lien Law, Garageman Still Has Right to Hold Car for Bill Under Old Common Law

By George F. Kaiser

Legal Editor, Motor World:

We had a car brought in from a neighboring town by the owner. The battery was overhauled, also starter, and several parts of rear axle replaced, and we now have quite a bill against it. We have been told by a banker of his own town not to let him get the car unless he paid the bill, as he was not good for it. His mother seems to have money, but he has spent all he had, mostly for books. What is your opinion about holding this car until the bill is paid in cash?

We also have a car in our store which was sold and a note given last Dec. 1, due this Dec. 1. When transaction was made the party lived here and had a little property, but later sold all of it and moved to Ohio and has purchased property in his wife's name. He came after the car and we took the note to the bank, but as he had moved and had no property in this state they would not pay it. We told him and he said he could fix a note on which we could get the money in case we needed it, as he thought he would be able to pay it all when the note came due this Dec. 1. It rained and was muddy and he had to go back without the car, without making the change in the note and we have heard nothing from him yet. Now what we wish to do is to cancel this note we have, which is a personal promissory note with no security and unendorsed, and then keep the car for resale or our own use, as we see fit. Also, at one time we planned to send a man home with the car, but that man became sick and could not go, and as we could not send anyone else that was never done.

(Signed) G. E. T., Secretary.

I would say that although the State of Illinois has no specific garageman's lien law, and no artisan's lien law, and it has been decided by the courts of that state that a garageman has no lien for storage, gasoline, oil, supplies or accessories, notwithstanding all this you still have the right to hold the car when you have repaired the same until your bill is paid. The common law right to a lien is still in existence in Illinois and accordingly I would hold the motor car

Troubles!

In every business troubles are bound to arise. Little troubles can be kept from getting big if taken in hand in time.

When you run up against something that seems to require legal advice you can benefit yourself and thousands of others if you ask the question of Motor World.

The problem and the answer will be printed in this department. That aids you and all our other readers. If you request it your name will not be printed. There is no charge. This is a part of Motor World's reader service.

which you mentioned in your first question if I were you.

With regard to the second question, you have no right to cancel the note which is not yet due and keep the car for resale or your own use. If the car were sold outright, it is now the property of the buyer, and your only recourse is to wait until the note becomes due, when it should be presented for payment, then protested by the bank if unpaid.

In the future in cases of this kind you will do well to secure yourself by having the purchaser give you a chattel mortgage or by keeping possession of the car until the purchase price is actually paid.

Maker May Refuse To Sell to Owner Direct

May Force Him to Buy Parts Through a Dealer

Legal Editor, Motor World:

In the construction of — motor trucks some of the units are purchased of other manufacturers. When selling our trucks we naturally expect that customers operating them will purchase of us any repairs that they may require from time to time, including any part or parts that comprise these units.

We sell these parts at the same price the maker of these units would charge if the customers were to buy from them direct.

The manufacturers of these units do not, as a rule, desire to handle any repair business; they refuse to sell direct and refer the truck owner to us for such parts as he may require.

When we purchase these units of the maker we buy their standard parts and they are not made to our specifications entirely. In a case of this kind has the truck owner any recourse legally against the maker in refusing to sell direct?

(Signed) M. A. McC.

In answer to your inquiry, I would say that a truck owner has no legal recourse against a maker of parts stocks because the latter refuses to sell direct and will only sell through a selling agent.

Notwithstanding the various rules of restraint of trade, monopolies and the like, we still have the right to appoint such people as we may choose as our selling agents and to refuse to sell otherwise than through those agents.

EMPLOYEE'S ESTIMATE OF CHARGE NOT EVIDENCE

That the testimony of an employee of an automobile repair company as to the company's estimate what it would charge to repair an automobile damaged in a collision, is not proper evidence as to the amount of damages sustained by the automobile in the accident, was decided in a recent New York case.

It was also held in this case that it was not proper for the court to allow a chauffeur employed by the party who was being sued to testify that he was discharged from his employment immediately after the accident. (155 N. Y. S. 200.)

"Staple" Article Is Defined

The United States District Court for the District of Kansas in a recent case held that when a contract for the sale of personal property is broken, the damages which can be recovered are the difference between the market value of the personal property and the contract price of the personal property, if they are staple articles and have a known market value, and that even if the article may have been specially manufactured in some cases it may be a staple article. The articles over which the dispute arose was an electrical generator and certain accessories. The court held that as these were of general use, they were staple articles. (226 Federal 173.)

Success or Failure?

Page 5

WIDE-AWAKE MERCHANDISING

BULLETIN BOARD A BUSINESS AID

It Can Be Made to Retain Interest of Customers

The bulletin board is a means of keeping close to customers. It is a link between buyer and seller that occupies a position all its own. It can be used for building up a reputation; for inspiring confidence, for driving home the merits of the car, for proving the efficiency of your shop.

For example, an owner sends you a bona-fide letter of appreciation on the smallness of his repair bill. This letter posted on the board, with possibly a few short remarks to drive the lesson home, should be an invaluable aid in building business.

Another owner is pleased with the monthly inspection service given his new machine, and tells you about it in a letter—this should go on the board.

A rise in the price of a certain make of tires takes place and in addition to sending out letters to your regular customers a copy is placed on the board just to make sure that every one is informed.

At the approach of winter some advice is given on the care of the car, the necessity of using an anti-freezing solution, what to do to the storage battery, and so forth.

The importance of keeping the tires properly inflated is the subject of a special bulletin and incidentally the sale of some tire gauges should result.

Tips on driving and caring for the car, information about speed traps and the condition of the roads in the vicinity are things that might go on the board.

All these things will be appreciated by the motorist.

ERRS INTENTIONALLY

It is not always easy to get up printed matter in such a way that everyone will read its contents through. An effective way of stimulating interest is to misspell a word or so and then offer a prize in the form of a discount to all those that find the error.

D. of S. R.

No, that doesn't stand for a new lodge—it means Doctors of Sick Radiators—and that's just what we are. By our new and exclusive process we are able to repair and restore to usefulness almost any radiator and that, too, without plugging, marring or defacing in any way; neither do we cut any of the tubes. In fact we increase the radiating surface rather than decrease it. If your radiator is old and leaky, if your fenders or bodies are mashed and marred, if your windshield looks like you had been in a wreck, just drive down to 240 South Market Street and let us convince you that we can make your car look like new at a trifling cost.

We already have a large share of the commercial truck service business in Wichita. Why not let our experts keep your delivery cars in condition? Send them down tonight have them back in service in the morning.

GOODIN MOTOR AND TRUCK COMPANY

240 S. Market Street. If in trouble anywhere at any time, phone Market 685. We want to be family physician to your motor car. Big Bull Tractor, \$585. Factory.

This is a newspaper ad of the Goodin Motor & Truck Co., Wichita, Kan. It brings out the points of radiator repairing to an extent unknown to the average man. It is interesting

PERSONAL CLEANLINESS HELPS

Teach your clerks to be careful of appearances. Clean faces, clean hands, and finger nails. Well-kept hair. Clean linen and shoes are more important than good clothes.

Simplified System

Page 5

HAS LIST OF 225 SATISFIED OWNERS

And Gives It to Every Man Who Questions Car's Merit

"When a prospect asks me about the reliability of the car we are selling," said a certain sales manager, "I offer to supply him with a list of 225 owners in this city who have had no motor, gearset or axle trouble since the day they purchased their cars." This is a convincing argument and it is rarely that a man asks for the list, but when he does it is gladly furnished.

FREE MAILING DOES IT

Free post cards with a picture of the garage or store on them are good advertising, but the trouble is to get the customers to use them. Even if a pile of these cards is placed within easy reach there will be only a few taken. A correspondent in "System" offers an easy solution. It is merely to hang up a sign stating that the proprietor will see that all cards are properly stamped and mailed. It has been found that this little service of stamping and mailing will cause the cards to be used.

BEATING THE OCTOPUS

The commuter generally reaches home with his arms laden with packages. A considerable part of what he does not purchase in the city he is likely to send for to some mail-order house. One wide-awake dealer successfully combatted this evil by meeting the trains every morning and evening with circulars urging people to shop at home; and there was an attractive price list attached to demonstrate that such a course would be worth while.

YOUR SUCCESS

Your success depends largely on what other people think of you and your business methods. Look at yourself and your business as the public does.

People like to see employes with clean collars, and like to see goods handled by clean hands.

1000 MILES FROM THE OPPORTUNITY

But Danforth Grasped It and Made a Big Profit

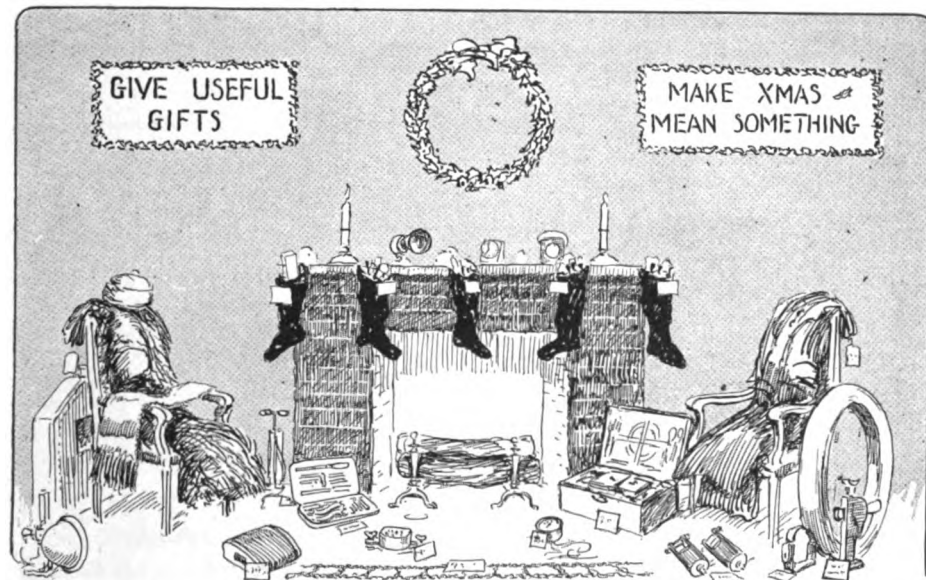
Albion L. Danforth, manager of the Cadillac Motor Co. of Boston, though young in years is one of the most efficient opportunity graspers in the trade. A little incident illustrates his methods.

He was at Detroit on a visit to the factory, and while eating his luncheon at a hotel he noticed a small item in a Detroit paper that told of the destruction that morning by fire of the Chauncy Thomas Co.'s plant at Boston.

He knew right away that it meant the loss of a lot of motor cars upon which were being put limousine bodies, as the Chauncy Thomas Co. does that work for the wealthy people of Boston.

Danforth immediately got in touch by long-distance telephone with his head salesman in Boston. When told it was a bad fire, with the cars practically destroyed, Danforth dictated an advertisement to be inserted in all the Boston papers the following day. The advertisement merely called attention to the fact that the Cadillac company had a few enclosed cars for immediate delivery. But he ordered the advertisement to be placed on the same page alongside the fire story. In a few days all the enclosed Cadillacs were sold, and Danforth got many orders for others.

Christmas Windows Always Draw This Time of Year



TRY THIS WINDOW SET-UP. Make the background look as homelike as possible. The fireplace may be built of boards, covered with cloth or building paper, or it may be of building paper on a wooden frame. The pointing between the bricks may be put on with a heavy black crayon. The mantel shelf should be of board, strong enough to

hold the display. If you have no winter clothing to display, use mackinaw robes, or erect some other display of the same height where the chairs stand. Put price tags on everything. The signs may be bought or home-made, but make everything as attractive as possible. It is better to spend a few cents and have a good display than to scrimp

Wins Customer Over to List Price Principles

Are you satisfied with the treatment I have given you since you have been one of my customers, and is the **QUALITY** of my guaranteed repair work on tires and tubes along with the 8-0-4 **FREE SERVICE** worth enough to you to continue giving me your business without the necessity of my cutting price, quality and service? Answer Yes or No.

Remark _____

This return card goes with the letter printed below at the right

GETS CUSTOMERS TO PAY THE LIST

It is hard to get the list price, some dealers say. But it can be done. There are various plans that may be employed in making the getting of the price easier. William P. Yoerg, Holyoke, Mass., has used one plan with success.

He deals in tires, and features his service. He appeals to the tire user on this basis. In effect he says: "I can't cut prices and give my service. Aren't my service and my prices worth while? If you think so, continue to patronize me." At the right is one of his letters.

THIS LETTER IS USED BY YOERG IN HIS "LIST PRICE" CAMPAIGN

YOERG TIRE & RUBBER CO.
285 Maple St.

Tire Repairing Auto Accessories
Holyoke, Mass., June 18, 1915.

YOU ARE BUSY,
But not too busy,
TO READ THIS LETTER:

A prominent physician of this city recently made the following statement to me:—"I would rather buy tires from you even if I had to pay you \$5.00 per tire more, because I do not worry about tires and know your **SERVICE** is always real service." Have you ever felt the same way? Has our 8-0-4 **FREE SERVICE** ever been of any benefit to you? Think it over before you continue reading this letter as I have an important question which I wish to have you answer.

I understand that in the near future there is to be opened in our city one or more so-called cut-price tire and tire repair shops and I feel it my duty to write you at this time to ask your opinion regarding this situation. You will, no doubt, be interested on first thought with the prices which will be quoted, especially on tube repair work.

The question I want answered is this:—Must I meet this competition, must I cut my prices, must I cheapen the quality of my repair work, and must I discontinue the 8-0-4 **FREE SERVICE** which I have given my customers for the past six years, and will you take into consideration not only price but **QUALITY** and **SERVICE**. You are a business man, you know as well as I do that you cannot buy a \$40.00 suit of clothes for \$20.00 and at the same time expect to receive **QUALITY** and **SERVICE**.

I want to give you the same fair and courteous treatment I have given you in the past. I want to give you the same 8-0-4 **FREE SERVICE**. I want to give you the **QUALITY** in repairing of tires and tubes with the same iron-clad guarantee I have always given you, but it will be impossible to do this and compete with the prices which will be quoted to you by these so-called cut-rate dealers.

I want to continue doing business with you, I do not want to lose a customer, and I have taken this way of placing this situation before you in a fair way. I enclose an addressed postal with a printed question on the back of same. All I ask you to do is to read this question over carefully and answer Yes or No. It will take but a minute of your time and I will greatly appreciate same. I do not ask you to sign your name, and this will insure you against my using your name for advertising purposes, but I do want you to answer the question and answer it the way you think.

Don't forget to mail the postal card.

Yours very truly,

Enc.

WM. P. YOERG.

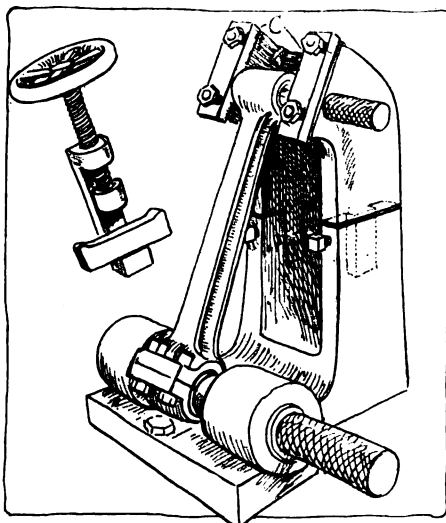
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Testing Connecting Rods

(No. 374)

This jig is for testing the trueness of connecting rods and pistons, and while it requires the making of a casting its convenience more than repays for this expense. Any size piston or connecting rod may be tested. The upper and lower ends of the connecting rods are first tested for trueness by placing between pins which correspond to the wristpin and crankpin. If only a few sizes of rods



(No. 374)

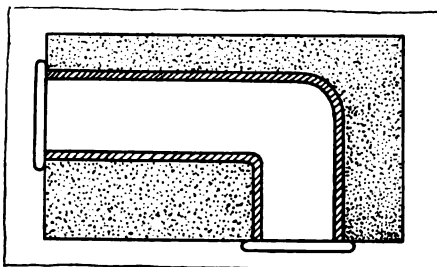
This jig tests truth of connecting rods

are tested, as would be the case in a service station, ordinary cylindrical bars of steel of the proper size will suffice, but if all sizes of rods are tested, then adjustable pins, such as shown, will be required. If the connecting rod is found to be bent it may be straightened in a vise or by the tool illustrated. When the connecting rod is straight, the trueness of the piston is tested, for it may be that the wristpin hole is crooked. Piston and connecting rod are placed in the jig together and then the edges C are brought into play. These edges are parallel to the connecting rod and show whether the piston is straight or not. The jig must be provided with an adjustment between centers to allow for different lengths of connecting rods and the edges must be adjustable laterally so that different widths of pistons may be accommodated.

Machining Small Parts

(No. 375)

A jig for use in machining small parts such as gasoline pipe fittings, may be made out of a block of steel split in half and roughly hollowed out to the shape of the part. Then with the part in place babbitt metal is poured in to fill up the small cracks and rough spots. After the



(No. 375)

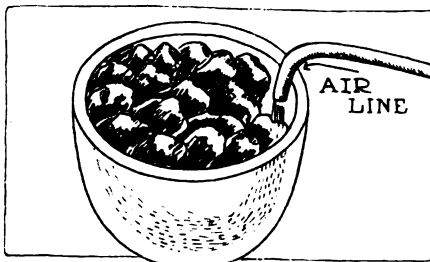
Small parts can be machined easily in this jig

part is machined the two halves of the jig are pulled apart and another put in its place and so on.

Heating Small Parts

(No. 376)

A charcoal crucible may be used for heating small work in lieu of a forge. The rate of combustion may be raised by directing a blast of air in at one side, from whence it will circulate throughout the mass due to the curve of the bottom surface.—F. W. Gear, Forty-ninth Street Garage, New York.



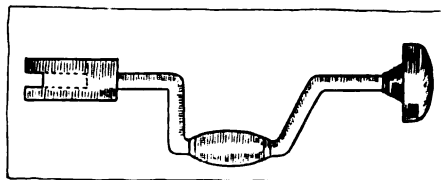
(No. 376)

A charcoal crucible is good for heating small parts

Removing Prest-O-Lite Nuts

(No. 377)

For removing the thumb nuts on Prest-O-Lite clamps an old brace with a suitably shaped end will be found a time saver. The end piece, which is permanently attached to the brace or not as desired, is drilled through the center and



(No. 377)

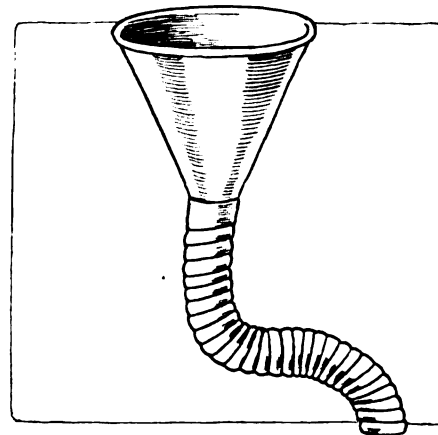
This is a brace for removing Prest-O-Lite nuts

notched at the end so that it fits right over the wing nut.—M. Gerard, Cissna Park, Ill.

Adjustable Spout Funnel

(No. 378)

Having had trouble filling several different types of automobile engines with oil, I constructed a funnel which may be used on any motor regardless of the location of the filler pipe. The spout was removed from an ordinary funnel and a piece of the flexible tubing from a dis-



(No. 378)

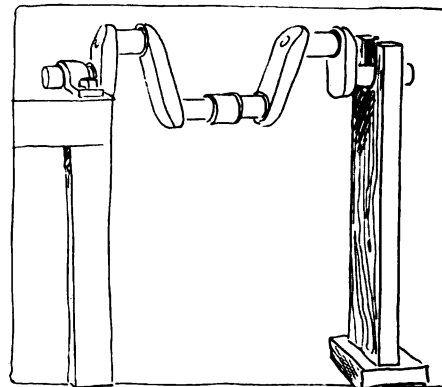
The tube from a bulb horn is a funnel spout

carded bulb horn soldered in its place making a flexible spout.—Ray L. Martin, South Side Garage, Fort Worth, Tex.

Lapping Crankshaft Bearings

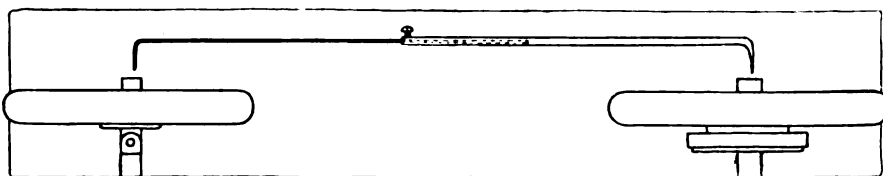
(No. 379)

For lapping the crankshaft bearings it will be found convenient to clamp one end of the shaft to the bench, as shown, and allow the other to rest in a notched standard which may be nailed or bolted to the floor. A rest like this will do for any size crankshaft.—B. G. Smith, Richbell Garage, Mamaroneck, N. Y.



(No. 379)

A rest at the end of the bench holds a crankshaft



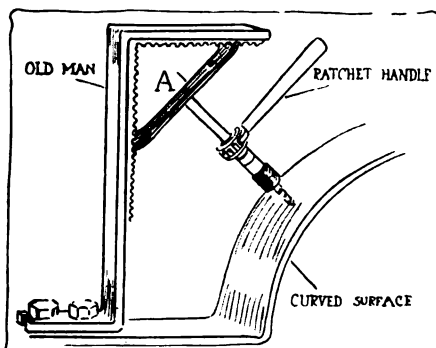
(No. 380)

This adjustable tool shows whether front and rear axles are parallel

Lining Up Wheels

(No. 380)

When tires wear rapidly or the car steers badly it is well to determine whether the front and rear wheels are the same distance apart on both sides. There are many ways this point may be determined, but probably the quickest is to make a gauge out of a rod and a piece of tubing, adjustment being obtained by sliding the one in the other. The two are locked by a set screw.—F. W. Gear, Forty-ninth Street Garage, New York.



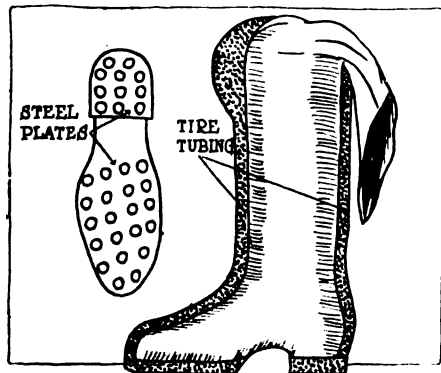
(No. 381)

Homemade "old man" for drilling curved surfaces

Drilling Cured Surfaces

(No. 381)

An old man which may be used for drilling on curved as well as flat surfaces is shown herewith. It allows the ratchet to be placed perpendicular to the plate A on the old man. This plate may be adjusted to almost any angle by moving it one way or the other in the toothed rack. The latter may be purchased by the foot and then riveted to the old man, which is made out of heavy flat steel stock.—W. A. Raban, Portchester, N. Y.



(No. 382)

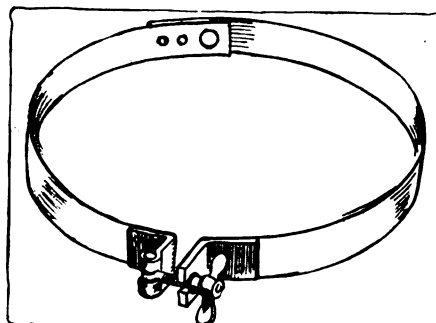
The washer's boots can be reinforced like this

Compressing Piston Rings

(No. 383)

An adjustable tool for compressing piston rings may be made out of a band of steel and a few simple fittings. The

band is made in two parts which are adjustable at the back by a series of holes in one member which catch in a rivet head on the other. These holes give a



(No. 383)

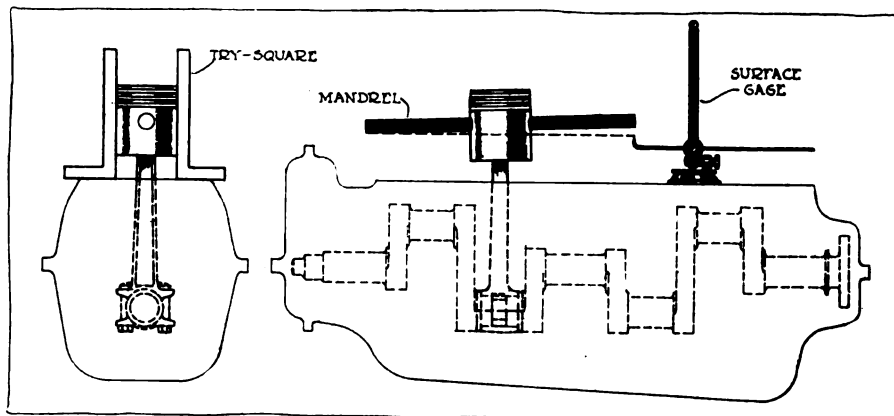
An easily adjustable band for compressing rings

rough adjustment while the band is drawn tightly around the rings by the wing nut at the front, which is hinged to one of the members and engages the other through a forked construction.

Another Rod Test

(No. 384)

A simple method of determining



(No. 384)

Here are several ways of determining whether connecting rod bearings and pistons are true

whether the connecting rods are true and their bearings parallel, providing the crankcase is not integral with the cylinders, is shown here. A long mandrel is placed through the piston, taking the place of the piston pin. Then either side is tested with a surface gauge and if both sides are the same height the rod is all right. Before this test is made, however, the upper surface of the crankcase must be tested for straightness by using a straight edge as shown in the illustration.

When using the surface gauge the piston must not fall to one side or the other the slightest amount, and to prevent this a try square should be placed at each side as shown. If the piston is tapered allowance must be made for this by placing the piston so that the squares touch at the bottom and there is the same amount of space between try square and piston at each side at the top. The length of the mandrel magnifies the amount the bearings are out of true.—Wm. McIlvrid, Colt-Stratton Co., New York.

To Make Boots Last

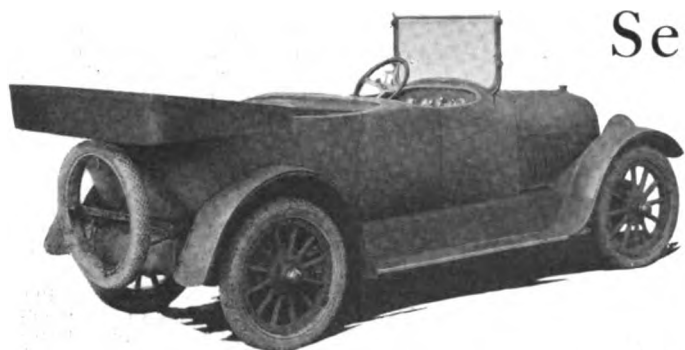
(No. 382)

Usually the washer is provided with rubber boots, and in some states, notably New York, these are required by law. Under ordinary conditions the life of a pair is only about a month, which means a charge of \$5 or \$6 each time. The life can be increased nearly ten-fold by reinforcing the boots by cementing old tire tubing over the boot so that its surface is completely covered. The soles and heels are shod with metal plates, which may be obtained at the shoemakers.—George E. Basler, West Ferry Garage, Buffalo, N. Y.

Your Idea Is a Beaut!

Out there in your repairshop you have worked out a little labor-saving short-cut that is a dandy. The problem arose and you or one of your men worked out a solution. The thousands of men who are reading these Repairshop Short-cuts every week want to know about that short-cut. The chances are that most of them have encountered the same problem and would be glad to know how you solved it.

Will you please send us a short letter telling us about it. With the letter send a pencil sketch, it makes no difference how good or how poor the sketch is so long as it shows the idea. Our artists will redraw the sketch and you will receive a letter of notification and a copy of Motor World when the short-cut is published. We have always found that a sure way not to forget a thing is to DO IT NOW.



The new King seven-passenger has a double cowl body and an exceptionally smooth interior

Seven-passenger King Eight at \$1,350

Ultra-modern Body Lines Mark New
Creation—Rear Suspension on Canti-
lever Springs—Brake on Transmission

SUPPLEMENTING its five-passenger model, which is continued with few changes, the King Motor Car Co., Detroit, has brought out a new seven-passenger eight. The price will be \$1,350, the wheelbase is 120 in., and tires 34 x 4 in., equipment, of course, being complete.

A rearrangement of the springs has permitted the body to be lowered a little and this, in connection with new body lines, has produced a car of distinctive appearance.

The new motor is 3 x 5, giving 282.7 cu. in. piston displacement and is essentially a high-speed type, being geared but a little above 5 to 1 on high. Only a slight amount of stagger has sufficed to permit the use of side-by-side connecting rods, these having adjustable bearings of the usual kind. Pistons are Lynite aluminum alloy cast in permanent molds and the wristpins are arranged to rock direct in the pistons. Smoking is practically impossible.

There are three main crankshaft bearings and all oil is forced from the pump through the crankshaft to the connecting rod bearings, the pump being situated at the rear end of the crankcase driven off the bottom of a vertical shaft. This shaft has the Atwater Kent distributor with automatic spark advance mounted at the upper end, and the driving gears for it are on the extreme rear end of the camshaft, so the distributor comes just in front of the dashboard. It

is thus located in a very accessible position.

The front end has a silent chain drive, with adjustment on an idler with eccentric bushing between the generator and the crankshaft, this giving a triangular main drive with separate chains for the

SEVEN-PASSENGER KING

Price—Touring, 7-pass.....	\$1,350
Number of cylinders.....	Eight
Shape	L-head
How cast.....	Blocks
Bore	3
Stroke	5
S. A. E. rating.....	28.8
Ignition	Atwater Kent
Carbureter	King
Starting-lighting	King
Clutch	Dry plate
Gearset	3-speed
Wheelbase	120
Tires	34 x 4
Type rear axle.....	Floating

camshaft and generator. The generator is beside the crankcase, where it cannot interfere with the accessibility of any other part. With the generator in this location and the distributor at the back end, the valve alley is clear of everything except the carbureter, which is a special King design.

A very neat idea in connection with

carburetion is the combination of intake and exhaust manifolds, these being cast in one. The compound manifold provides the necessary warmth for the gasoline without the complication of a water warmed manifold or a carbureter jacket.

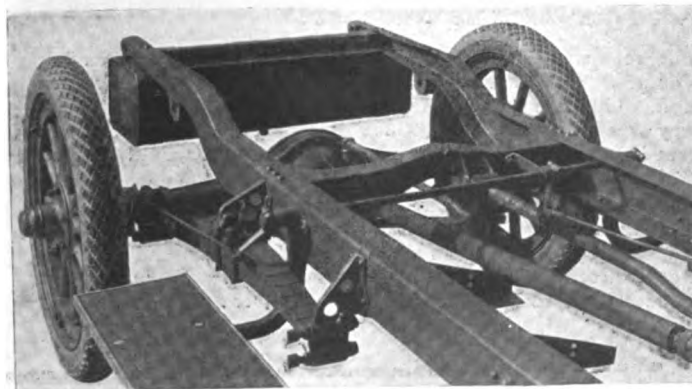
Another feature which is unusual and also makes greatly for accessibility is the position of the starting motor, this being mounted on top of the clutch housing, meshing with the flywheel ring gear in the usual way. Both the generator and motor are made under Ward Leonard patents and the battery is a Willard.

For cooling, the thermo-syphon system is employed, this being particularly efficient in V motors, owing to the low position of the cylinders relative to the radiator, and it is noteworthy that the exit pipes from the cylinder blocks are so arranged that the water has a particularly free circulation around the valves.

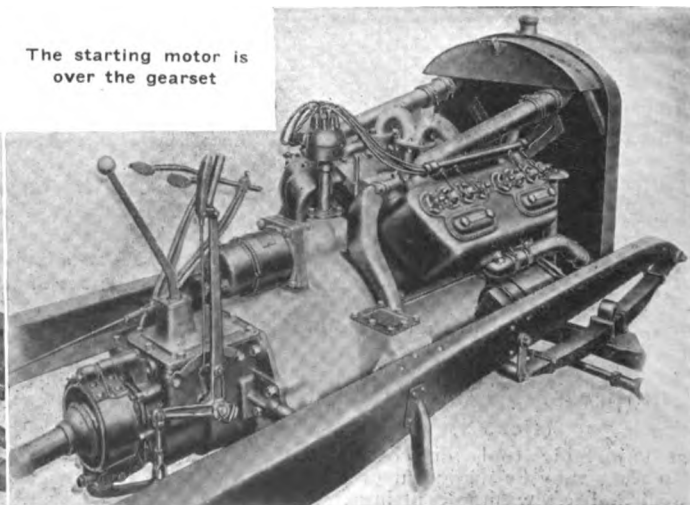
On the side of the three-speed gearset the tire pump is mounted, this having a sliding gear that meshes with one of the countershaft transmission gears. In this place the tire pump is out of the way and cannot interfere with any engine accessory, while it is just as convenient for use.

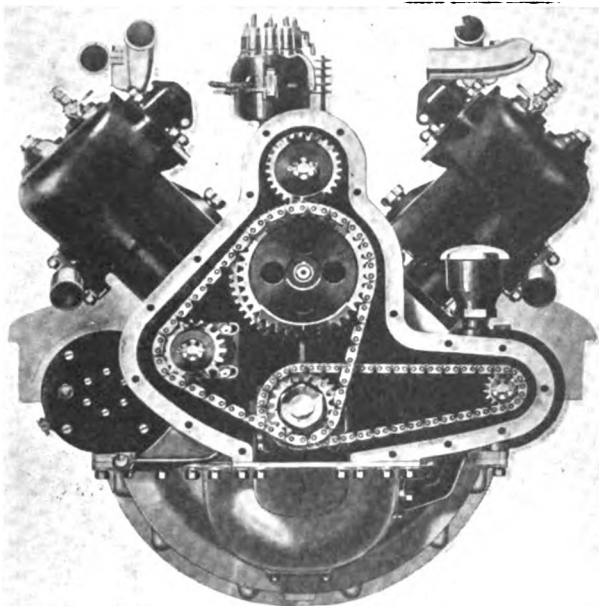
Behind the gearset, mounted on the tail end of the main shaft and embracing the universal, is the transmission brake, which is linked to the emergency lever and has abnormal power. It is a simple type of band brake with toggle actuation,

The cantilever springs are shackled in front and carried beneath the axle in the rear

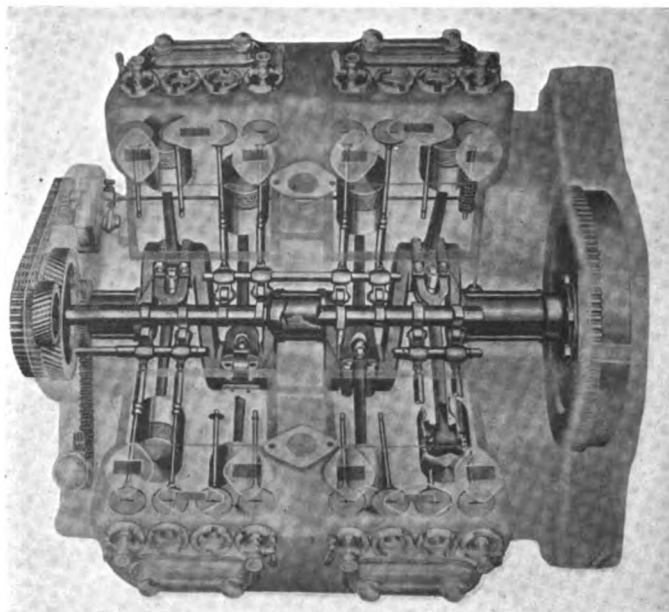


The starting motor is over the gearset





The arrangement of the chains in the King eight is simple and provision is made for adjustment



Phantom view of motor showing disposition of units and arrangement of connecting rods

needing very few links between the brake and the lever while the release springs are arranged in such a way that dragging on the drum is impossible. A substantial casting which bolts to the back of the gearbox carries the fulcrum pin of the brake.

Aft of the brake is an open type propeller shaft with a universal at each end, there being a short torque stay arranged to divide the angular bend equally between the two joints. The drive shaft is tubular and so long that the joints have but little work to do.

Owing to the use of a transmission brake, the rear axle is particularly light and neat, having no brake rods on it, as the contracting service brakes are operated by direct pull rods from the cross shaft. The latter has no balance beam, but the natural elasticity of the rod gives an equalizing effect. Spiral bevel drive is employed and the axle is a full-floating type.

The long cantilever springs are clipped beneath the axle and transmit the drive to the swivel brackets, the front ends of the springs being shackled. For the frame a very strong section has been selected of unusual depth, and the principal cross member is made of the crankcase arms at the rear of the motor; in front there is a dropped cross piece which supports the front end of the power plant and the radiator.

Internally, the body is in keeping with its luxurious appearance. It is finished in the best possible style and upholstered with a lavish use of stuffing and leather. A detail of equipment immediately noticed by anyone acquainted with other King models is the absence of the folding steering wheel. In the tonneau, the folding seats vanish into the back of the front seat when folded, and when unfolded are found to be upholstered as

well as the other seats and large enough for real comfort.

Bosch and Splitdorf Settle

NEW YORK, Nov. 30.—Magneto patent suits instituted about two years ago between the Bosch Magneto Co. and the Splitdorf Electrical Co. have been amicably terminated. In two suits by Bosch against F. A. Baker, who sold Splitdorf-equipped motorcycles, Splitdorf recognizes the validity of the Bosch patents. In one suit by Splitdorf against Bosch, Bosch recognizes the validity of the Splitdorf patent. It is stated that this

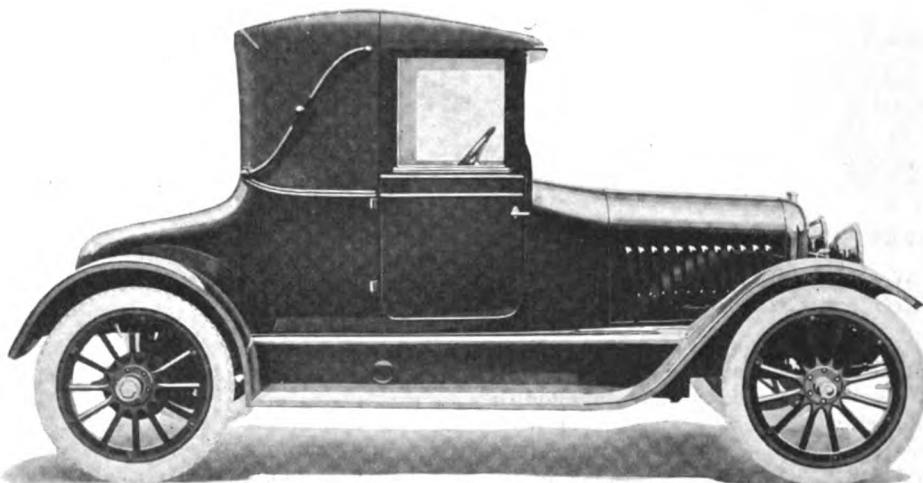
ending of the litigation will have no great effect because both companies have discontinued the infringing construction.

One suit, Bosch vs. Baker (Splitdorf), was upon Bosch patent No. 974,967, covering magneto ignition in V-type, two-cylinder gasoline engines.

The other suit, Bosch vs. Baker (Splitdorf), was upon the Gottlieb Honold patent, No. 900,542, covering a construction which gave a prolonged high-tension spark with a high-tension magneto.

The suit, Splitdorf vs. Bosch, was upon patent No. 1,074,416, covering a means for changing polarity.

Grant Adds Cabriolet and Roadster Models



Both new models are mounted on the standard Grant six chassis which remains unchanged except for the substitution of special roadster springs designed from the standpoint of roadster weight and three-passenger carrying capacity. The cabriolet is a model of completeness. The top may be lowered, from the windshield back, but, with top up, the cabriolet is an enclosed body. The body is roomy and is lined with gray whipcord, the upholstery being of the same

material. The windows can be lowered and are all equipped with anti-rattle devices and the windshield is also adjustable to a variety of positions. The back opens up its full width, providing unusually large storage space with ample room for storing extra tire and demountable rim in addition to luggage, repair kits, tools, etc. The new models are finished in dark Brewster green with fenders, hood and running gear done in black.

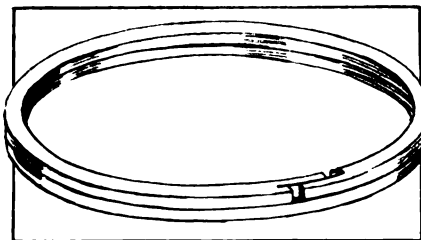


ACCESSORIES & SUPPLIES :

B. & W. PISTON RINGS

Ballman-Whitten Mfg. Co., 5407 Easton avenue, St. Louis.

Two eccentric rings are pinned together with the joints at diametrically opposite points. The thick section of one ring is opposite the thin section and the joint of the other. A scarfed joint is used. The makers claim absence of leakage and a uniform pressure against the cylinder walls all round.

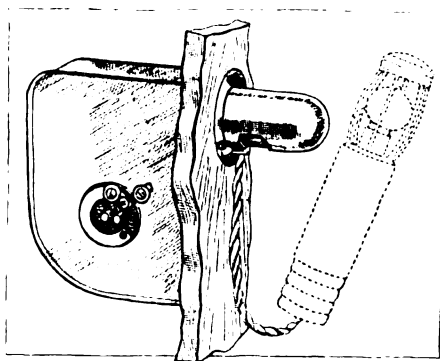


B-W piston ring, showing joints

CUNO DASH LAMP

Cuno Engineering Corp., Meriden, Conn. PRICE, dash and trouble lamp combined without bulb, \$4.25; without bullseye, \$4; reel and housing only, \$2.25.

A trouble lamp and dash lamp are combined in one. The handle of the



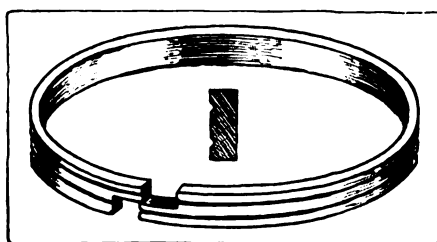
Cuno dash and inspection lamp

trouble lamp disappears into the dash together with 15 ft. of cord. The cord is automatically wound by a spring-operated reel in a sheet steel housing at the rear of the dash.

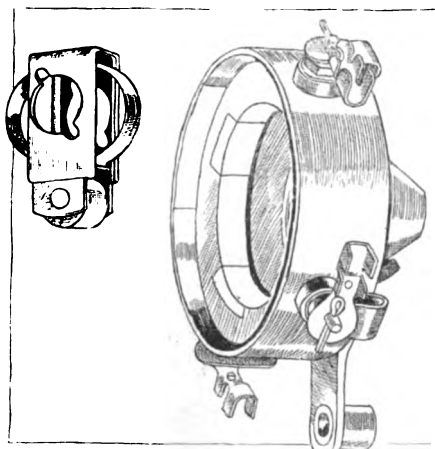
OVERHEAD REVOLVING WASHER

W. A. Raban, Portchester, N. Y. PRICE, \$15 to \$35.

Washers are made in several styles, and the general features claimed for all of them are simplicity and a method of support which removes all strain from the working parts. The Leader, which lists at \$17, is provided with an inside valve which is said to prevent leakage even when the pressure is abnormal. A double-ended washer which allows two men to work at once, but on opposite sides of the car, sells for \$20, and another washer, with two revolving arms, one outside the other, which enables two men to pass and repass without interfering, sells for \$35.



Rittenhouse piston ring with cross section



Cuno timer for Ford cars

CUNO TIMER FOR FORDS

Cuno Engineering Corp., Meriden, Conn. PRICE, \$1.50.

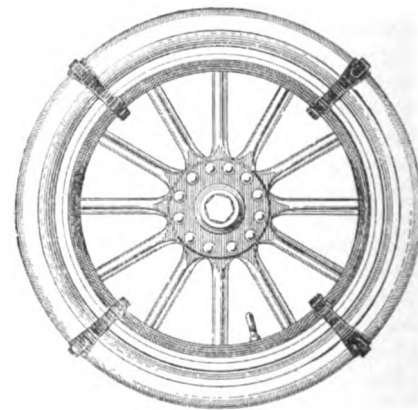
The case of the timer is made of steel and is light and strong. It is enameled to prevent rusting. The fiber ring is made of specially heat-treated hard, gray bone fiber. The spring wire terminals guard against loose connections and

make for each attachment of the wires. The roller is carried in a slide and presses directly against the contacts by a large, flat spring.

UTILITY AUTO SHOE

Franklin Auto Shoe Co., Pendleton, Ind. PRICES, per set, 3- and 3½-in., \$4.50; 4-in., \$5; 4½-in., \$5.50; 5-in., \$6.

Steel shoes are strapped to the tires by means of waterproof webbing straps with buckles which hold at any point and are quickly released. The shoes are of pressed steel with smooth, rounded inner surfaces so that the tires are not injured by their use. Exterior projections provide a grip on the ground. The shoes are easily attachable in case of emergency after the wheels have become



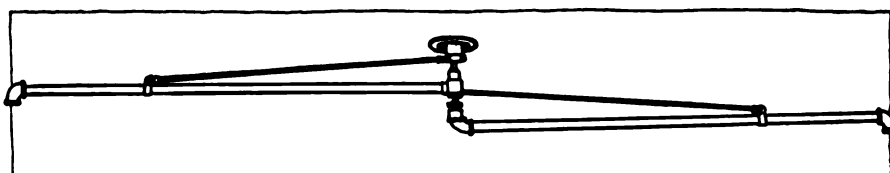
Utility steel studded straps

mired. No tools are required for attachment, and the wheels do not need jacking up. Eight shoes constitute a set.

RITTENHOUSE PISTON RING

Rittenhouse, Fleury Co., Baltimore.

Features of this ring are the oil grooves around the periphery and a V-groove in the step-lap joint. The peripheral grooves carry a film of oil which acts as a seal against the passage of gas and the shape of the lap-joint groove is designed to prevent leakage at that point.



Raban double-ended overhead washer to permit two men to work at once

MOLLER LIGHT DEFLECTOR

J. A. Moller, P. O. Box 242, New Rochelle, N. Y. PRICE, per pair, probably \$1.

This is a pressed steel deflector which is sprung over headlamps and thus deflects the beams downward. It is in one piece and holds itself in position. It is enameled white inside and may be any color outside to match the car. Special colors, however, advance the price slightly, the standard being black. All sizes are made, beginning with 7-in. diameter and advancing by inches to 12.

PEERLESS LAPPING TOOL

Peerless Piston Ring Co., Newark, N. J. PRICE, tool, 50 cents; disks, 25 cents per pair; lapping compound, 25 cents.

The tool comprises a handle, connecting rod, and disks and nuts for holding the piston rings in position while lapping. First the lower disk and the rod are placed in the cylinder, and then the rings are slipped over the handle onto the disk in the same position that they would occupy in the cylinder. The pins are then inserted and the upper slotted disk is clamped in position.

HEISER VALVE TESTER

Heiser Special Tool Co., Kingston, Mo. PRICE, \$2. DEALERS, 25 and 5 per cent.

The tester consists of a reservoir with a funnel at the top and a drain cock at the bottom and in the body an opening which is clamped against the valve port after the manifolds have been removed by the same means that are used to clamp the manifolds in place. Gasoline or water is poured into the tester when the valve under test is seated and leakage past either valve or stem indicates the need of attention. The device can be applied to any valve port not more than 2 in. in diameter.

STEER WARMS

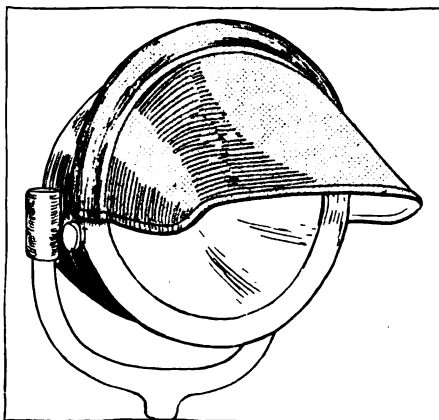
Interstate Electric Co., New Orleans. PRICE, Ford type, \$5; other cars, \$7.50.

These are two electrically heated grips which may be laced to the steering wheel rim. Two types are made for Fords, one for models previous to 1915 and another for 1915. The grips for other cars are made with three degrees of heat. The current consumption is small and the guarantee is for 5 years.

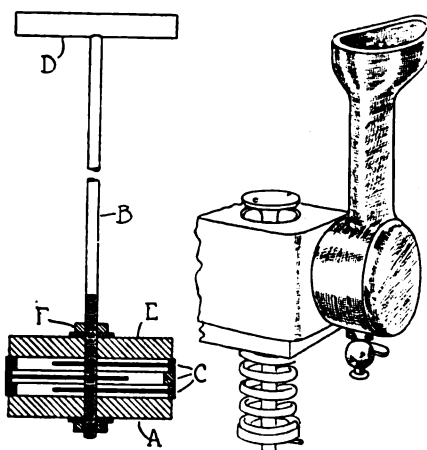
EASYBAK AUXILIARY CUSHION

Holden Mfg. Co., St. Paul. PRICE, leather, \$2.25; imitation leather, \$1.25; fabric, \$1.

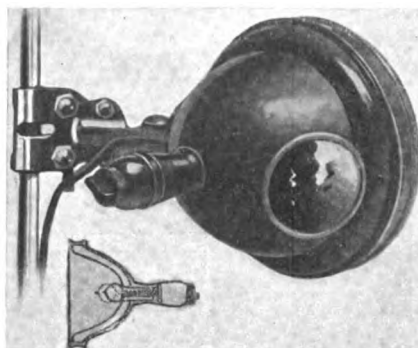
This is a cushion to fill the vacant space between the lower part of the back and the back of the seat, thus giving the seat back a more natural curve and allowing greater pressure to be exerted on the pedals.



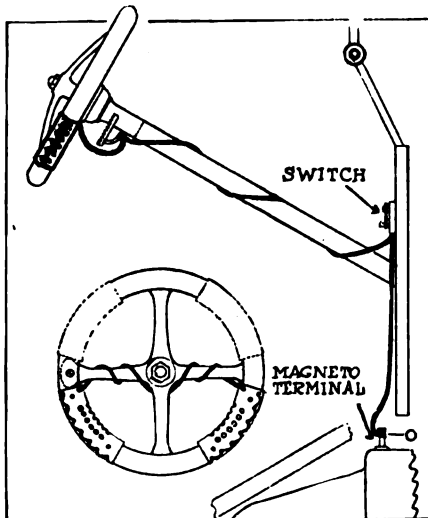
Moller's detachable light deflector



Left—Peerless piston ring lapping tool
Right—Heiser valve tester



Old Sol spotlight with mirror



Steer Wars applied to wheel

OLD SOL SPOTLIGHT

Hawthorne Mfg. Co., Bridgeport, Conn. PRICE, \$4.50 for 6-in., \$6 for 7-in., and \$7 for same light with additional pilot light. Tungsten bulbs, 25 cents extra.

This light is for reading road signs at night and is clamped to the side of the windshield within easy reach of the driver. It is supported on a universal joint, which allows it to be moved in any direction. The universal is constructed so that it will not rattle. There is an on-and-off control on the end of the handle, which is at the back of the lamp, so that the light may be used with greatest ease. A focusing device is located just forward of the control switch, where it is ready for instant manipulation. There is a mirror on the back for daytime use which shows what is behind. All models have silver-plated reflectors, 6-volt, 15-candlepower bulbs, and the \$7 model has a 2-candlepower pilot light which is also operated through the handle switch. The lamps are enameled black.

WIND-O-CLEAN CLOTH

Cleveland-Akron Bay Co., Cleveland. PRICE, large size, 25 cents each, \$2 per doz., \$24 per gross; small size, 10 cents each, 85 cents per doz., \$2.50 per case of 3 doz. and \$10 per gross; assorted case (2 doz. of 10-cent size and ½ doz. of 25-cent size), \$2.50.

It is claimed that this cloth cleans and polishes glass instantly without the use of soap, water or any cleaning compound.

WATERPROOF TOP DRESSING

Mansfield Mfg. Corp., Syracuse, N. Y. PRICE, pint, 60 cents; quart, \$1; ½ gal., \$1.75; 1 gal., \$3.

Mansfield Never Leak Waterproof Dressing is said to be impervious to water and dampness. No paint, varnish, shellac, linseed oil or asphaltum are used in its composition and it has no tendency to become stiff. A quart is sufficient for a roadster top and a half-gallon for a five-passenger touring car.

RAYNTITE FOLDING BUCKET

Du Pont Fabrikoid Co., Wilmington, Del. PRICE, 75 cents.

The bucket holds 1½ gal. and is made of top material. All seams are stitched and cemented with a special adhesive to prevent leakage. The material is guaranteed against hardening or cracking.

AFFINITY CLEANER

Affinity Cleaner Co., Omaha, Neb.

No water is required in using this compound, which is said to remove grease from clothing effectually. It has a pleasant odor and is not injurious to either hands or clothing.

Semi-floating Axle Returning to Favor

Many Makers Adopt It for 1916 — Simple, Cheap and Light—Good Axle Shafts Required

THE most striking change in axle design is the return to the old form or the semi-floating axle. Of the whole series the semi-floating is the simplest, cheapest and lightest, it was the first type of "live" axle to be used for motor cars. Then, as steel of those days was not what it is now, and as engineers knew much less about proper sizes, quite a number of wheels came off through the end of the drive shaft breaking.

Thence arose the idea of the full-floating axle, the only type in which the drive shaft has nothing whatever to do but transmit the drive. Afterward came the intermediate types, which to some extent combine the advantages of both.

Today, however, there is no difficulty in getting the right material for shafts to both take the drive and support the weight, and engineers know positively what sizes are necessary. So the simplicity of the semi-floating axle is bringing it back again into favor. Not only

types, respectively. What makes it clear that semi-floating is going to be tried out again on a large scale is the return to semi-floating constructions by makers and users who had been using other kinds up to the production of 1916 designs.

Four years ago it seemed that the worm gear was going to be used for passenger car propulsion, on a large scale, but the discovery of means for making the spiral bevel cheaply and expeditiously throttled the chances of the worm just as they were born. The spiral bevel is a very old idea. It has been used both in America and Europe for many years, and the reason the worm gear gained so much ground on the other side was that there were several manufacturers of worm gears who were able to give better results than could be got with the crude machines on which spiral bevels were made.

Making good worm gears is a very difficult manufacturing proposition and

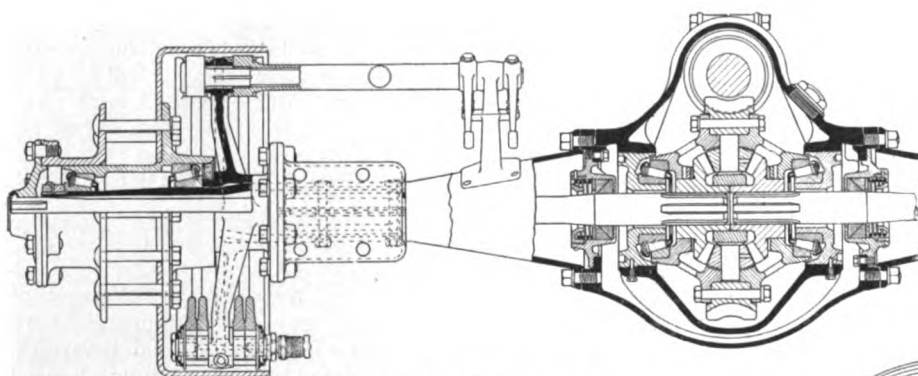
it takes a long time to equip a plant with machinery and men to turn out worms in quantity, and as the big demand in America has been for big worms for truck drives, practically all worm gear enterprise has been directed towards this branch of the business.

Yet, despite the immense popularity of the spiral bevel gear, there are plenty of cars which have the straight tooth form still. This is because there are in existence quantities of machines for making straight tooth gears and there are comparatively few machines for cutting the spiral type. In February of this year it was hardly possible to place an order for spiral bevels anywhere in the country. Present appearances suggest, however, that the spiral bevel will be almost universal within the year or two necessary to re-equip the gear-making plants.

For light cars the spiral gear is not so greatly advantageous as it is for heavy machines; it is hard to drive a 4,000-lb. car quietly with the straight bevel, but it is far less difficult to make a satisfactory job with a car weighing 2,000 lb.

In the truck field an interesting situation prevails by reason of the three-cornered struggle in progress between the chain, the internal gear drive and the worm. Undoubtedly worm gearing is fashionable for trucks; it is one of those things which the user is apt to demand because he has heard so much about it. Of course, it is an excellent form of transmission, needing simply to be made by skilled manufacturers. The worm is the most durable form of gearing known if designed properly and lubricated properly.

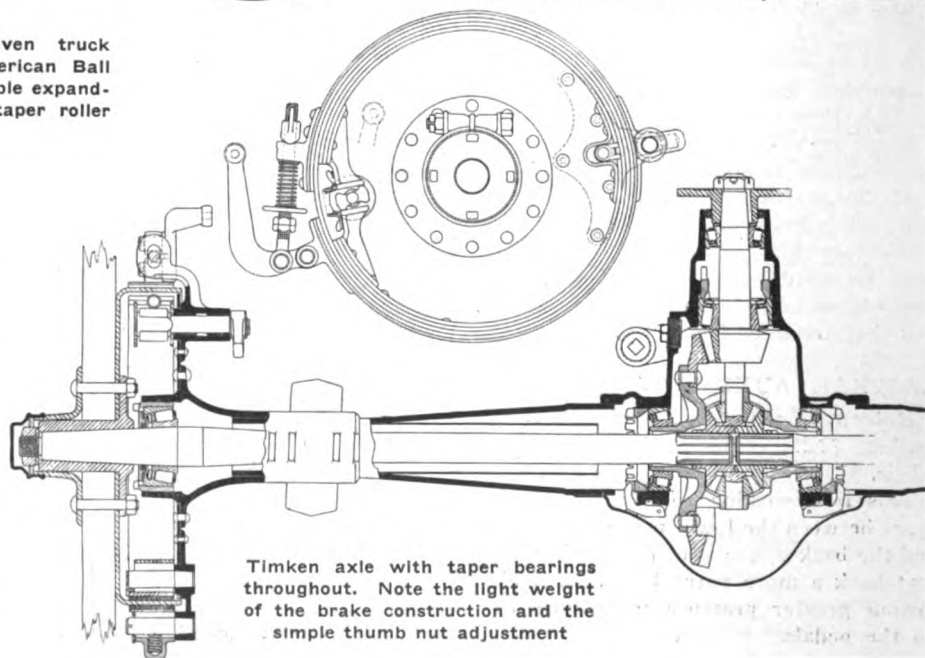
Internal gear drives are being used very extensively for trucks of fairly small capacity, two tons and under, but it is also to be found on heavier machines. The worm, by reason of the fact that it is not readily obtainable in



Full-floating, worm-driven truck axle made by the American Ball Bearing Co. It has double expanding brakes and Bock taper roller bearings

for light passenger cars, but even for the heaviest trucks is it coming into use. One manufacturer of axles has gone on record as saying that the name of the semi-floating axle was the reason for the demand for the full-floating types. His idea being that when an unmechanical man was told his car had a semi-anything he got the idea he had been robbed of half something he ought to have had. Whether this is true or not, there will be more cars made this coming year with semi-floating axles than ever before.

Actually taking a census of the principal axle manufacturers shows that they are divided about equally into three groups at present as supporters of the semi-, full- and three-quarter-floating



Timken axle with taper bearings throughout. Note the light weight of the brake construction and the simple thumb nut adjustment

small sizes, has been applied to light trucks in very few instances.

The great advantage of internal gear is that it is easier to make and it will withstand more abuse in the way of lubrication neglect than a worm gear, but an entirely satisfactory truck is possible with either form.

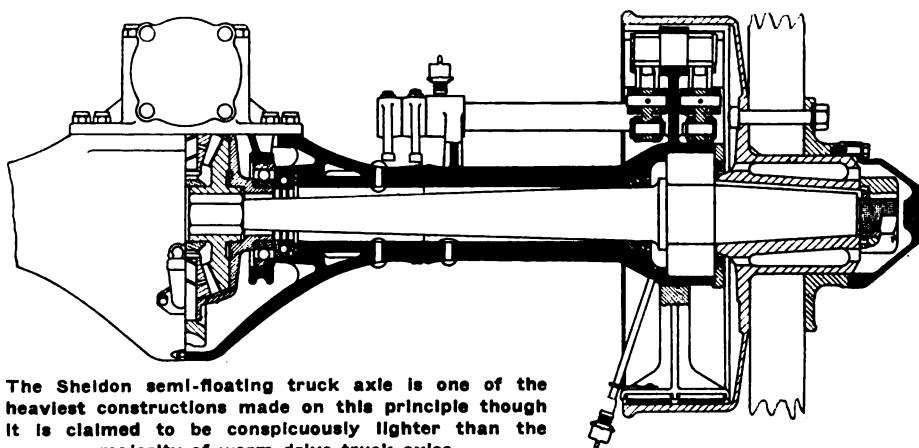
The sufferer in the war so far has been the chain, whose defence is rapidly weakening under the attacks from both worm gear and internal gear and bids fair to vanish ere long. If chains are enclosed and run in an oil bath, as has been done on a few trucks, nearly all their disadvantages disappear, but it is too late to save the chain now by giving it the protection it should have had when the first trucks were built.

A series of inquiries among axle makers elicits the fact that the popularity of driving through the springs and eliminating the torque and radius rods is growing rapidly with passenger car manufacturers and is making headway with trucks, though slowly in the latter field.

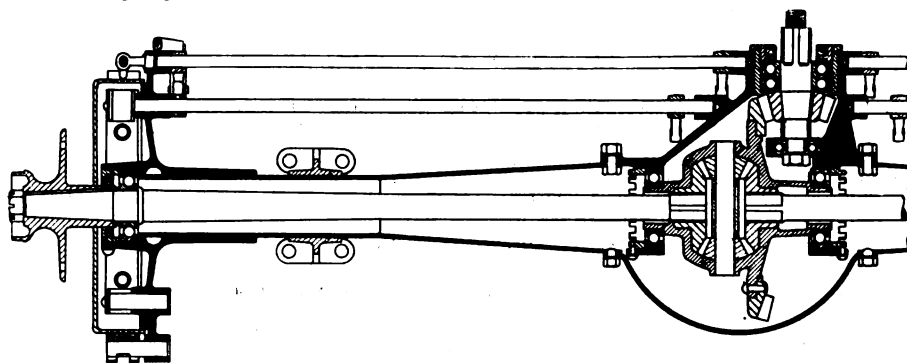
This is the so-called Hotchkiss drive and has the advantages of simplicity and lightness. It eliminates parts which are a good deal liable to rattle, which is an advantage, and it is claimed that the natural elasticity of the drive when taken through the spring is kind to the tires and to the axle gears.

That this driving system is not universal is due to the idea that the spring offers the best, and most comfortable suspension, when it has nothing to do but support the weight of the car, and has no driving stresses to resist. As the art of spring making has improved, the argument has lost force, and today opinions are seldom strongly against the simpler form. Of course there is nothing against the use of radius rods and torque rods, and there may be some advantages in freeing the spring of driving loads, wherefor many engineers prefer to stick to the design they know is good and make no experiments.

In the external parts, the things about an axle that the car user notices, there



The Sheldon semi-floating truck axle is one of the heaviest constructions made on this principle though it is claimed to be conspicuously lighter than the majority of worm-drive truck axles



The Hess axle typifies the pressed steel pattern as applied to light cars and the makers consider it simpler than the other type where the casing is a built up job

has been little change. Perhaps, on the whole, brakes are improving, though there is still plenty of room for improvement in the means for adjustment. As to the popularity of the two internal brakes, both side by side within the same drum, some axle manufacturers assert it is gaining while others do not think it will do so. The drawback is that the wide drum necessary is more awkward to accommodate and that the construction is more costly. The advantage is that both brakes being enclosed, both are protected from dirt.

External brakes, of the customary pattern, are now frequently provided with means for adjustment by a thumb nut or a knurled knob of sorts. Sometimes

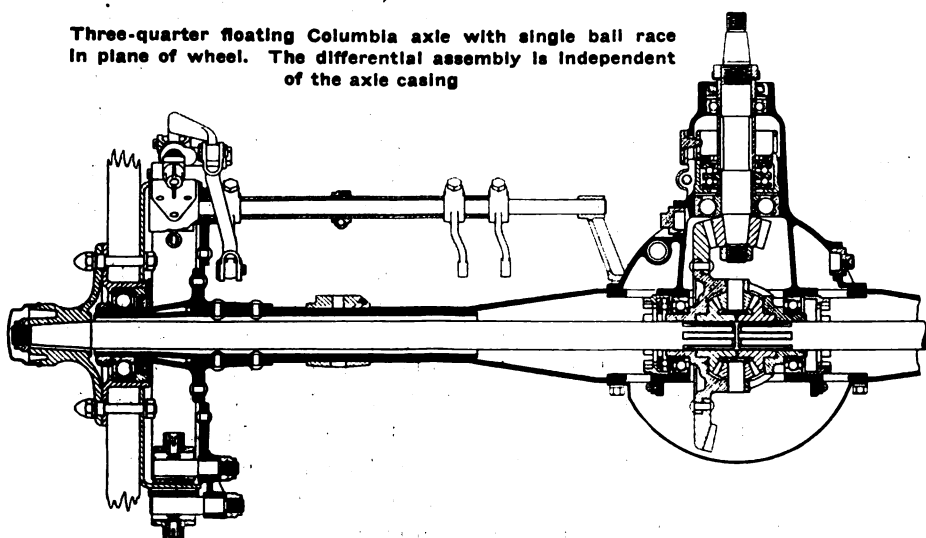
this is a matter attended to by the axle maker, sometimes by the constructor of the chassis; it is a good tendency because it saves the user time and trouble.

Compensation or equalizing balance links in the brake control are greatly neater for 1916, and a fair number of cars is being sold without this mechanism. It has long been a matter for discussion as to whether the balance arms were really necessary and brakes seem to operate much the same whether the equalizers are used or not. Their elimination, like that of the torque rod, removes a possible source of rattle and takes away a part which needs oiling.

One big improvement which is led up to by mention of lubrication is the growing employment of self-lubricating bushings for the brake operating rods. These are bronze bushes usually, with graphite embedded in holes or depressions in the working surfaces, so that a shaft or pin which only has a little movement, like a brake operating part, will keep itself in good condition without oiling.

Another change which affects the repairman is that the spiral bevel axles require less adjustment. It is said by some engineers that the spiral gear is so quiet by nature that meshing adjustments will be given up altogether, since the limits of good machining are sufficiently close to ensure the proper performance of the gear. It is a little early to tell as yet, but the repairman need not be afraid that overhauling will make an originally quiet axle into a noisy one.

Three-quarter floating Columbia axle with single ball race in plane of wheel. The differential assembly is independent of the axle casing



MOTOR WORLD

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The Motor World Simplified System of Accounting

Instalment No. 3

IN following the stories on the accounting system that Motor World has devised and is presenting, each reader should master each step, each detail, before he lets it pass by. Those things that are slipped over half-understandingly will in the future bob up to bother and perplex. They may mean monetary loss to the system user.

The system stories have been written in the simplest possible language. This certainly should be understood by the man familiar with accounting and should be understood by him who is unfamiliar. This simplicity has been made possible because the stories have been written by a man who when the stories began knew nothing of accounting. This has necessitated many conferences with the skilled accountant who laid out the work.

And this is just what Motor World wants you to do. Confer with this accountant. If necessary, write many times. Ask us any number of questions. But **BE SURE YOU UNDERSTAND.**

The system article this week is on pages 5 to 10.

More Selling Arguments

THE fact that the advertising pages of a trade paper may be of great value to the subscriber is not as generally known as should be the case. These advertisements in a great many instances have been

compiled by the manufacturer at considerable expense with the sole object in view of expressing the selling points for his product in the clearest, most concise manner. And this is just what the salesman requires most. He must sum up the selling points of the product he is selling in the fewest possible words.

If he can get these quickly, easily by turning to the advertising pages of his trade paper then that trade paper has taken on added value to him. That he can do so admits of no dispute, as even a brief examination of the advertising pages of any trade paper will reveal.

Efficient Stock Keeping

IN the keeping of stock system is necessary. No one disputes that fact. As a matter of fact, there probably isn't a garageman or dealer who has not a system of some kind for keeping track of where things are in his stock room.

There are all kinds of systems. Many of them are excellent. But, also, many stock rooms are in poor condition. It is the fault of the system operator, not of the system. Representatives of Motor World have visited many stock rooms and have found many excellent systems that are not kept up. The perpetual inventory records which are being used extensively today are among the best recording plans in vogue, but these too often are not kept properly.

A good system is absolutely no good if it is not kept up. If the stock man is to depend upon memory, why bother with the expense of cards and records? No matter what your system is, **KEEP IT UP!**

Uplift at Home

A MILL or a factory or a repairshop was at one time little more than a place to work in. The hands came in the morning and worked all day and went home at night. No thought ever was given to making the premises pleasant, to increasing the efficiency of the workmen by the altogether simple expedient of making them more contented. The fact that any man will work better if he is happy was completely overlooked in the chase after the nimble dollar.

But what a difference now. On every side, bright, clean factories—acres of glass and plenty of sunshine; club rooms for the workers, recreation rooms, shower baths, and all such features as a few years ago were thought not only unnecessary but an expense.

That they are not an expense and that they are necessary has been proven too many times in our great industrial plants to require further discussion. The point that needs emphasis is that the little fellows—the men with a small shop, with two or three employes—have failed to grasp this, one of the basic principles on which the big fellows have become big. The average garageman or repairshop operator fails to see the value of such uplift movements.

Simning Urges a Start Toward National Body

**Believes Preliminary Meeting Could Do
Much—Suggests That Dealers and
Garagemen Unite in the
Work**

Editor Motor World:

It was with much pleasure that I read in the Nov. 10 issue of Motor World the very able articles on National Association of Automobile Dealers by J. C. Thorpe, of Urbana, Ill., and by N. T. Miller, of Des Moines. Both of these gentlemen have covered the ground most thoroughly.

In September the writer wrote many of the various automobile dealers' associations of the country with the object of ascertaining the sentiment relative to the needs of a National Federation of automobile dealers. To these letters many very gratifying replies were received.

The general opinion voiced by the various secretaries was that there was without question much need of an organization of this kind, and they expressed themselves as willing and glad to do their part in promoting such. However, these things come slowly.

It would not be policy, the writer believes, to attempt to organize such a federation on a moment's notice. The matter requires much study. We should not attempt to get under way in a slipshod manner and then expect that the federation would be a success. It would be better had it not been organized than to organize and then be unsuccessful.

It would seem that the proper thing to do would be to arrange for a convention of representatives of such of the trade associations as may be interested—we cannot expect them all to attend, for, unfortunately, a few, and a very few, are not live enough to see the possibilities of such an organization.

At such a convention the subject could be threshed out, as suggested by Mr. Thorpe in his letter on the 10th, and the foundation for a good, strong, well-organized national body would then be laid. The delegates would then go back to their respective associations enthused with the possibilities of the greater organization and, after going over the situation with the members of their body, would, we believe, without question have the unanimous support of these members.

With such support the success of the national body would be assured. Why not do it now? We have all been thinking about it for the past two months and feel, or should feel, the possibility and need of such an organization. Let us hear from secretaries and members, advising what time and place would be



JACK FIELDS
Regal-Minneapolis

District Representatives

XXXVI

This is No. 36 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

Jack Fields started in the motor car industry after 12 years selling heating and plumbing apparatus, with the Rae Auto Co., Fargo, N. D., as a salesman and remained there until this company sold out to the Gate City Auto Co. about two years later. He took charge of the latter company and remained at this post for three years, or until this firm, too, sold out. He then became connected with H. J. Tucked, Vancouver, as a salesman, and then went to Saskatoon for the McLaughlin Carriage Co. as district sales representative; he was there for 6 months and was then transferred to Winnipeg. He stayed there for a year and then moved to Minneapolis as salesman for the C. S. Motor Car Co. January of 1915 he became connected with the Regal Motor Car Co., Detroit, with headquarters in Minneapolis.

agreeable for such a convention in order that a time and place agreeable to the majority can be arranged for, and then let us have a big and enthusiastic meeting on the subject and get started.

We all feel that the need of a national federation of existing local organizations is there, and the need will be greater each year. Let us all put our shoulders to the wheel and get out of the rut of individuality into the broad road of unity. By all, I do not mean only the strictly dealers organizations, but, as Mr. Miller suggests, I believe that the garagemen's associations should be with us also. Our interests are much alike and the dealer needs the garageman and the garageman needs the dealer, so let us work together for the common good of both.

R. B. Simning, Asst. Secretary,
Minneapolis Automobile Trade Assn.
Minneapolis, Nov. 15.

HOW CAN THEY ESTIMATE?

Editor Motor World:

In looking over your report of the National Association of Automobile Accessory Jobbers, would say that I wish to congratulate everyone concerned, and I believe it will be one of the best things in retail trade in our line of business that has ever happened.

I note on page 9 that Mr. Williams suggests that during the winter the garageman estimate the costs of the jobs to be worked on. I would like to ask anyone how the average garageman in cities of 200 to 800, or even 2,000 to 8,000 population, are going to estimate any kind of jobs that come to their shop, as from my experience in talking with a large number of garage owners in Iowa, Illinois and Ohio. I find that little more than 2 per cent have a cost system, or any other method of knowing

what their costs are in any department.

Without question of doubt Mr. Williams knows what his costs are. I believe that Mr. Williams is on the right track and that the jobbers are the best friends that the average retail garageman has. Also, that the retailers should have the cooperation of the manufacturers in cars and accessories to help educate him as well as the jobber, because from my experience in the business and acquaintance with men in the business it is going to be some awful job.

Referring to the subject on page 6 on "What Should Be the Proper Jobbers' Profit," and the remarks on page 8 in which one jobber claims an overhead of 17½ per cent for cost of doing business and a profit of 17½ per cent.

I would like Motor World to print this in large type with a hand pointing to these figures which would call the retailer's or garageman's attention to it. If it costs the jobber 17½ per cent to do business, it is fair to suppose that it will cost the average retailer 35 per cent to do business.

Our overhead for the first six months period in 1915 on accessories and general stock in the garage was 17 per cent and on tires 15.7 per cent. I am not questioning the jobbers' figures, but feel that this matter should be shown up strongly to the retailer and so impressed on his mind that when he buys an article for \$10 he must sell it for more than \$11.70 or lose money. Twenty per cent overhead would be a much safer estimate than anything under that.

Assuring you that all of us in Rockford appreciate what your publication is doing for the general trade, I am,

Yours truly,

Jud S. Joslyn.

Rockford, Ill., Nov. 2.

The RETAIL NEWS

CANADA

The Maple Leaf Auto & Garage Supply House, Hamilton, Ont., is erecting a two-story garage, 29 x 100. It will cost \$5,000.

George H. Gooderham, Toronto, plans to erect a garage on University avenue to cost \$30,000.

MOUNTAIN

The Foster Auto Supply Co., Denver, will be opened this month at 138 Sixteenth street, by J. W. Foster, formerly manager of the Denver Auto Goods Co. Foster has been in the motor supply business in Denver 12 years and is an officer of the Automobile Trades Association of Colorado, the Associated Garages of America and the Retail Credit Men's Association of Denver.

G. C. Copenhagen's Garage, 420 East 20th avenue, Denver, has been destroyed by fire. All the cars were gotten out except two gasoline cars and one electric, which were a total loss.

SOUTH

The Whiteman-Kirkpatrick Electric Co., Nashville, Tenn., is building a garage and shop of gray mat brick with terra cotta trimming. The garage and salesroom will be in one. The building will represent an investment of \$50,000 and is to be completed shortly after the first of the year. The company is distributor of the Rauch & Lang and Baker.

The Lee Tire Sales Co.'s branch, Nashville, has been taken over by the Blackwood Tire Co. The Blackwood company will have the exclusive Lee agency. R. E. Rodgers, who has been the Lee company's manager, will continue at the head of this department.

The Jetton Tire Co., Nashville, successor to Moore & Jetton, will move into the Lee Tire Sales Co.'s old store on Broad street. This company handles the Pennsylvania tire.

J. B. Palmer, Nashville, Tenn., will build a two-story brick garage, 50 x 175. It will cost \$12,000.

The Gate City Motor Co., Greensboro, N. C., is having a one-story garage erected for its occupancy. It will be 67 x 200 ft. and will cost \$1,000.

The Du Pre Motor Co., Columbia, S. C., has secured permission to build a one-story garage, 47 x 100, to cost \$10,000.

The Jones Auto Supply Co., Macon, Ga., has opened a supply store at 310 Second street.

NORTHWEST

B. B. Hunter, Des Moines, has purchased an interest in the Waterloo Auto & Supply Co., Waterloo, Ia., and will take an active part in the management. The company distributes the Oldsmobile and Oakland.

The Greenwood Garage, Colwell, Ia., will soon be opened.

Clifford Pratt, Lohrville, Ia., has purchased a half interest in the garage of Vigor Larson.

The Haynes Motor Sales Co., Fort Dodge, Ia., has opened for business with Fred Nair as manager. It is a branch of the Sioux City Sales Co. and will distribute the Haynes in twelve counties.

C. W. Schlatter, Wayland, Ia., is building an addition to his garage.

W. H. Griggs, Turin, Ia., is building a new garage, 50 x 75. This will be the first garage in Turin.

W. C. Cable, Steamboat Rock, Ia., has bought a half interest in the garage of F. W. Wilson.

Arthur Godwin, Hamlin, Ia., has bought ground for an addition to his garage.

The Yale Auto Co., Yale, Ia., is completing work on a new brick fireproof garage.

Harold Peters, Villisca, Ia., foreman of the repairshop for the Oliver Motor Co., has purchased a half interest in the repair department and will have charge of it. J. T. Oliver, head of the concern, devoting his entire time to sales.

Arley Nickerson, Moorhead, Ia., has secured the Nels Sorenson garage. Sorenson gets a farm in exchange.

Edward Kohlstedt, Storm Lake, Ia., has opened a new repairshop in the Doyle Garage. He formerly has a repairshop in Alta, Ia.

B. H. Pierce, of the Paige motor shops in Detroit, has bought the repairshop of the Zaring Auto Co., Oskaloosa, Ia.

W. T. Biggs and Lake Bear, Anita, Ia., have consolidated their two garages into one, to be known as the White Pole Garage; it is the only one in Anita.

F. A. Smith, Eldora, Ia., has taken possession of the Cowgill Theater, electric light plant and garage of O. C. Switzer and will take immediate possession.

The Duplex Vulcanizing & Tire Co., Davenport, Ia., has established a branch at Fourth and Brown streets and will open for business Dec. 15.

B. F. Schenfeld & Co., Woodward, Ia., has bought out the Woodward Auto & Supply Co. and also acquired its fireproof garage and its agency rights.

W. S. Moore, Turin, Ia., is president of a stock company organized there to build and operate a garage, 50 x 70, now being constructed; it will be under the management of W. M. Griggs. This will be Turin's first garage.

The Shelby Auto Co., Shelby, Mont., plans to build a garage.

J. H. Lovett, Independence, Ia., has opened a paint shop and vulcanizing plant in the garage of J. H. Wright.

William Kaiser, Independence, Ia., is building an addition to his garage on the West Side.

Dr. Sauers, Vinton, Ia., is completing a new garage at Becket and Concord streets and will occupy it soon.

Hansen & Davis, Tennant, Ia., has bought the Tennant Garage from Miller & Maxwell. The new firm will handle the Paige.

Bruce & Bonar, Bloomfield, Ia., is building an addition, 75 x 50, to its garage, and is rebuilding its old store. The addition will cost \$2,000. A new showroom, 90 x 50, is to be included and a new shop, 25 x 50. The building is to be fireproof and provided with a central heating plant.

A. J. Bensmiller, Sigourney, Ia., is tearing down the old Fair Hotel and will build a modern garage in its place. He has taken the agency for the Studebaker.

MIDDLE WEST

R. W. Knell, Detroit, has purchased the stock and business of the Detroit Accessory Co., 3089 East Grand boulevard. He will continue the business under the old name.

The Schafer-Bowlus Tire & Rubber Co.,

Toledo, has taken the premises at 216 North Erie street, to handle exclusively Kelly-Springfield tires. Schafer was formerly connected with the Cleveland branch of the Kelly-Springfield Tire Co. and Bowlus is a Toledo real estate man.

The King-Dort Sales Co., Detroit, is the new name of A. A. Crumley Co. Crumley has resigned as president and general manager and has been succeeded by G. W. Franklin, who was sales manager. The business will be continued at 998 Woodward avenue. The Dort and King are handled.

John Decormier, Atlantic, Mich., has opened a repairshop.

The Lewis Boomhower Garage, Battle Creek, Mich., will locate in a new building at 68 South Jefferson avenue.

The W. B. Speese Auto Supply Shop, Three Rivers, Mich., which was a partnership of John Hackenburg and W. B. Speese, has been dissolved. Speese will continue to handle the Paige, while Hackenburg will handle the Overland at the Three Rivers Garage.

John Colmlenter, Albion, Mich., has leased the former Albion Garage building and will do a general repair business.

Clarence De Land, Memphis, Mich., is erecting a new garage, 46 x 64.

The Davis Automobile Co., Chicago, has been organized by G. W. Stockwell, C. G. Hendricks and L. H. Marks.

Harry A. Muntz, Elgin, Ill., has taken a five-year lease on the Coliseum and will convert it into a garage. He will operate a motor livery.

The Rockford Double-Tread Tire Co., 319 Cedar street, Rockford, Ill., has opened a repairshop. J. B. Dahlheimer and son are the proprietors.

C. W. Olinger's garage, Franklin, Ill., was destroyed by fire last week; loss, \$7,000. The owner will rebuild.

Williams & Schumaker, Gibson City, Ill., have opened a tire repairshop on Eighth street.

The Motor Sales Co., Champaign, Ill., has been organized and has purchased the business of R. S. Bassett. The King and Maxwell will be handled.

The Peck Auto Sales Co., Grand Rapids, Mich., is negotiating for the purchase of ground for a new building to house its Studebaker business.

J. O. Andrews, Saginaw, Mich., manager of the Studebaker branch, is arranging for the erection of a warehouse.

The Case Auto Co., Rochester, Minn., will erect a two-story addition, with basement, 60 x 100. When completed there will be room for 150 cars instead of 60 as now.

Ralph Curless and Christopher Schmidt, Havana, Ill., have rented the building formerly occupied by the McFadden Mfg. Co. and will open a garage about January 1.

Ye Auto Shop, Peoria, Ill., has been incorporated with a capital of \$2,500 by W. W. Love, Nellie C. Bonner and F. M. Hutchins.

The Garford Motor Truck Sales Co., Columbus, has been formed to distribute the Garford truck. J. F. Dewey, Sheffield, Ill., has organized the new company. Headquarters are in the New First National Bank building.

The McKenney-Devlin Co., Detroit, distributor of the Haynes, Grant and Vim, has made E. A. Zimmerman retail sales manager. A new field man is F. L. Ermis, who will assist L. E. Wood, who thus far had entire charge of the field work.

The Stutz-Detroit Co., Detroit, recently organized to handle the Stutz, has added the Marion.

The La Bell Motor Car Co., Detroit, a new concern, has arranged for the construction of a garage, 50 x 150, to cost \$20,000, on Third avenue, between Henry and Ledyard streets.

The Prest-O-Lite Co.'s Detroit branch is to locate in new quarters at 1237 Woodward avenue.

F. E. Fuller, 235 North Fourth street, Columbus, has opened a used car business under the name of the Columbus Used Car Market.

Fred Kopf, 618 Huron street, Toledo, has opened a repairshop.

Lewis M. Browne, Columbus, formerly connected with the Columbus Buggy Co., has associated himself with the Rochester (N. Y.) agency for the Detroit electric.

P. O. Vivian, Mineral Point, Wis., has broken ground for a new garage and repairshop to cost about \$10,000. It will be of hollow tile and brick, one and two stories high, 50 x 80, with basement.

George F. Sanborn, Eagle River, Wis., will build a one-story garage, 50 x 50.

Laechelt & Schweikle, Berlin, Wis., proprietors of the West Side Garage, has been dissolved, Schweikle withdrawing to accept a position in Detroit. The business will be continued under the same style by Laechelt.

The Park Motor Co., Madison, Wis., recently incorporated with \$10,000 capital, has changed its name to the Overland-Madison Co., to better indicate the nature of its business, which is the distribution of the Overland and Willys-Knight. The members of the company are Carl and Gustav Roe, J. P. Gillespie and R. A. Warner.

The Double Tread Tire Co., an Illinois corporation with headquarters in Chicago, has filed articles and a statement to do business in Wisconsin. Headquarters are to be in Milwaukee.

Ryall's Garage, Ladysmith, Wis., is about to take occupancy of a large addition, 48 x 66.

W. G. Reeves, Stockbridge, Mich., will open a garage.

The Northern Garage, Calumet, Mich., was opened two days ago. In addition to the Overland and Jeffery, the Menominee truck is handled.

C. D. Hedinger, Saginaw, Mich., has been appointed distributor of the Marion in Saginaw, Bay, Tuscola, Gratiot, Midland, Gladwin and Arenac counties.

James McClure, Marquette, Mich., will soon open his new garage, a three-story building, 60 x 118. The front part, 30 x 60, will be used as a salesroom. An addition, 30 x 50, is being put up and will be equipped as a machine shop.

The Jackson Double-Tread Co., Jackson, Mich., has opened for business at 156 West Cortland street, under the management of L. H. Nowlin. The company will repair tires.

George Dickey, Kokomo, Ind., has withdrawn from Dickey & De Lon. He will operate independently in the future. He has the King and Dort agencies. His location is 104 East Sycamore street.

Harris G. Smith, Hancock, Mich., has been appointed manager of the Superior Garage, Calumet, Mich.

Alex Keskitalo, Calumet, Mich., is to have a garage which will be part of a new building to be erected on Pine street.

The Austin Garage, 5459-61 West Lake street, Chicago, has been sold to N. E. Nelson, formerly of the Linden Laundry. The former owners, H. C. Gordee and Fred W. Busse, will continue the sale of the Studebaker, Moline-Knight and Dodge Bros., under the name Austin Motor Co., in temporary quarters at 4701-4703 West Madison street.

A. R. Milholland and C. T. De Weese, Sidney, O., have opened a new garage on East Court street. They will devote their attention solely to the garage and accessory business.

EAST

The Stoever-Hannold Co., Philadelphia, distributor of the Jackson, has removed from 833 North Broad street to larger quarters at 923 North Broad street.

The Prest-O-Lite Co., Inc., Indianapolis, has opened a service station for the charging and repairing of storage batteries at its branch, 1418 Race street, Philadelphia.

The Atlantic Refining Co., Philadelphia, has purchased a lot on the east side of Broad street, north of Juniata, on which will be erected a distributing station. The lot has a frontage of 18.6 ft. on Broad street and is 244 ft. deep, extending to Juniper street.

A. Mercer Biddle, Jr., Albert H. Santa Maria and J. Craig Fleming, Philadelphia, are the incorporators of the Santa Maria-Biddle Truck Co., which has applied for a charter to operate a garage and sales establishment.

The Garford-Philadelphia Co., 2308-12 Chestnut street, Philadelphia, is holding a series of lectures on the workings of the Garford motor.

James A. Gaffney, Boston, president of the National League Baseball club, has begun to build some modern motor buildings on his land adjoining the new ball park on Commonwealth avenue.

The Sprague, Breed & Brown Co., Beverly, Mass., has begun the erection of a modern garage on Summit avenue.

George Wilcox, Greenfield, Mass., is building a new showroom and service station on Federal street to display the Overland and Willys-Knight.

H. F. Bailey, Westfield, Mass., has opened a new garage at the junction of Mechanic and Main streets.

F. R. Sleeper, West Somerville, Mass., has taken the agency for the Chevrolet.

Howard N. Paine has been made manager of the Lodico Express Garage at Mansfield, Mass.

J. E. Balcom, Somerville, Mass., has moved into a new fireproof building at 47 Day street.

Frank L. Robinson and sons, John and Lawrence, Columbia Falls, Me., are erecting a garage.

Enrico and Nino Moro, Mansfield, Mass., have purchased the Mansfield Garage on Chauncy street.

The American Tool Co., Hyde Park, Mass., is to erect a large garage on Hyde Park avenue.

The Mevis Motors Co., Springfield, Mass., has taken the Oakland agency in Rhode Island with headquarters at 118 Broad street, Providence.

William Marcus, Baltimore, will build a two-story garage at 27-33 West Mount Royal avenue. It will be 77 x 85. The Monumental Motor Co., Maryland dealer in the Kissel, has taken space in the building. This agency is now located at Howard and Franklin streets.

The Baltimore Buggy Top Co., 107-13 West Mount Royal avenue, Baltimore, which handles automobile supplies and does repairing, will build a 76 x 124 x 49-ft. addition to its present plant. It will be one story, of brick.

The Service Co., Bank and Fifth streets, Highlandtown, Md., distributor of Goodyear truck tires, has moved to 1209 Lovegrove alley, Baltimore. John Luntz, Jr., is the proprietor. New machinery has been in-

stalled and 24-hour service will be maintained.

H. L. Enos, Lockport, N. Y., has let the contract for a one-story garage, 70 x 200.

Benjamin Lerner, Worcester, Mass., will build a one-story garage.

The Miller-Baxter Rubber Co., Altoona, Pa., will build a two-story brick garage, 30 x 50.

J. W. Mason, 350 Halsey street, Newark, is having a three-story service plant, 33 x 189, erected at 1005 Broad street.

PACIFIC COAST

The Willys-Overland Co., Pasadena, will build a garage and service building at East Colorado street and El Molino avenue.

The Jamieson Motor Co., Spokane, has opened a salesroom at 1229 Sprague avenue and will handle the Pathfinder and Pullman. The owner of the business is E. H. Jamieson.

The Sunset Rubber & Supply Co., Los Angeles, has opened a salesroom at 2303 South Grand avenue.

Keaton tires, rims and rim parts are now represented in Los Angeles by a Keaton factory branch at 437-39 West Pico street.

W. C. McMullen, Los Angeles, has opened an automobile painting and finishing plant at 1010-12-14 South Los Angeles street.

G. W. Sundberg, Los Angeles, has secured the agency for the Case and has opened a garage on Los Angeles street near Eleventh.

Bert Frost, Los Angeles, has opened a repairshop at 1141 South Los Angeles street.

The Motor Car Equipment Repairs Co., Los Angeles, has moved to 1250 Los Angeles street.

The Jordan Motor Car Co., Hollywood, Cal., is now housed in a new brick building at 6658 Hollywood boulevard.

Ralph H. Clark, Hollywood, Cal., has been made dealer in the Apperson and Hupmobile. The agency is located in a new garage building at 6604 Hollywood boulevard.

The Auto Ignition Works, Los Angeles, has moved to 135 South Fremont avenue.

The Riley Auto Repair Shop, Los Angeles, has located at 433 South Figueroa street. This garage makes a specialty of machining parts for foreign and "orphan" cars.

A. A. Peterson Co., Los Angeles, has opened a garage and used car salesroom at 707 West Third street in addition to its Tunnel Garage on West Second street.

C. A. Gray and V. G. Armstrong, Hollywood, Cal., have secured the Dodge and Hudson agency in that city and are operating a service station at 6403 Hollywood boulevard.

Frank J. Dickey and C. E. and C. N. Stickney, Hollywood, Cal., have opened the Hollywood Class A Garage at 1720 Cahuenga avenue, with night and day service. The owners are putting in a stock of supplies, oils and tires.

The Plaza Garage, Los Angeles, has moved from 521 North Main street into a large new brick garage building at 628-632 North Broadway. The new building has large offices and an attractive ladies' rest room. With the opening of the Broadway tunnel, the Plaza Garage will be but two blocks from the heart of the business center of the city and it is estimated that at least 5,000 motor cars will pass the place daily. Supplies and accessories will be stocked.

Simplified System

Page 5

1916 IGNITION SYSTEMS

(Continued from page 16)

position the magneto is coupled to the motor and the timing is complete.

Eisemann

No changes have been made in the Eisemann instrument during the past year, although a new flexible magneto coupling has been introduced during the interval. The increase in motor speeds during the year have not caused any changes to be made in the design of the breaker or distributor mechanism, as these have been found to be fast enough to take care of the increased demands.

The Eisemann magnetos were modeled after the German make of the same name, and since these magnetos were supplying current for the European design, which are of high-speed characteristics, no new problems have been introduced by the increased speed in this country. The timing range of advance on these magnetos is 35 deg. on the crankshaft, with the manual spark control. On the automatic advance type, however, there is a range of 60 deg. advance. These magnetos are guaranteed for 2,500 r. p. m. on four-cylinder motors and 3,500 r. p. m. for sixes.

The present magnetos are waterproofed by having the magnets covered and by fitting a patented distributor plate which prevents water, dust or oil from reaching the high-tension terminal. The make-and-break mechanism is likewise protected by a waterproof cover. The models made are now designated as follows: G 4, fixed spark or manual control for four-cylinder motors; G N 6, manual spark control for six-cylinder motors, and G A 4, automatic spark control for four-cylinder motors; G N A 6, automatic control for sixes; E M R 4, dual ignition for fours; E M E 6, manual control, dual ignition for sixes; E M A R 4, dual with automatic spark control for fours; E M A R 6, dual with automatic spark control for sixes, and G 1, G 2 and G 3, single ignition with manual control or fixed spark for one- two- or three-cylinder motors.

For any of these models the Eisemann impulse starter can be fitted, which facilitates starting in very heavy motors or motors with very high compression. A special fitting for Fords is also made, consisting of an attachment which can be easily fitted to that car to provide it with Eisemann magneto ignition.

One of the features of the Eisemann magneto which is distinguishing is that at no time is the armature separated from the magnetic field. In this way the armature acts as a keeper and permits the magnets to retain their magnetism.

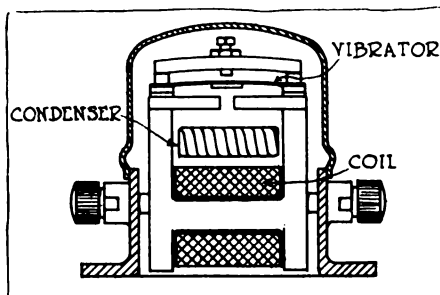
Splitdorf Dixie

The feature of the Splitdorf for 1916 is the addition of a twelve-cylinder model

to the Dixie line. This new magneto operates on the same principle as the other Dixie models, having stationary winding and no armature in the general sense of the word. The four motor car models are designated as 40, 60, 80 and 120 for the four-, six-, eight- and twelve-cylinder engines.

The Dixie magnetos operate on what is known as the Mason principle. The rotating shaft passes through the magnet folds instead of between them, and instead of carrying an armature on which the windings are placed, the shaft carries two solid polar extensions separated by a non-magnetic distance piece. Surrounding these revolving pole pieces is a light laminated field structure carrying a core. The core carries both the primary and secondary windings and the current is generated by sending magnetic lines alternately in opposite directions through the field structure.

Advance is secured by the fact that



Diagrammatic section through Bosch vibrating duplex coil. The coil is shown at the bottom and outside of it is an H-shaped magnet

the field can be rocked through several degrees, the rocking being accomplished by turning the timer on with the circuit breaker in the ordinary way to advance or retard the spark. By means of this positive connection between the field and the circuit breaker it is possible to arrange the instrument so that the sparks are produced when the magnetic lines are at their maximum, thus breaking the circuit at the exact peak of the current wave.

In the circuit breaker nothing moves except the cam attached to the shaft, and by this construction it is possible to adjust the contact points while the motor is running. The grounding terminal is insulated at the end of the spring clip which holds the breaker cover in position, and as it bears on the center of the cover the ground wire is also stationary while moving the arm of the primary.

The four- and six-cylinder instruments are identical in every respect except the distributor and timing gears. In the eight- and twelve-cylinder models the shape of the rocking field and also the polar extension are changed so that four or six sparks can be produced per revolution. The instrument is compact, the windings, for instance, being remarkably

small, being wound on a core of only $\frac{3}{4} \times \frac{1}{2}$ in.

Simms

The Simms Magneto Co. is concentrating on four- and six-cylinder magnetos and has brought out no new instruments for engines with a larger number. It has not been found necessary in these magnetos to change the breaker mechanism to meet increased speed demands, but refinements have been made for increasing the efficiency and life, as well as the accessibility. All Simms magnetos have the extended pole shoes which have featured this make for some time past and which are designed to provide maximum spark at low speeds.

These magnetos have a timing range of from 30 to 40 deg. crankshaft travel on the four-cylinder motors and 20 to 26 $\frac{2}{3}$ deg. for six-cylinder motors.

The Simms company has discontinued the manufacture of the waterproof magneto, having found it undesirable to enclose the magneto in the conventional manner. A tightly enclosed distributor board is relied upon to prevent short circuiting. The models available for four-cylinder engines are S-U 4, SU 4S and SU 4D. For sixes, SU 6, SU 6S and SU 6G. Each type is furnished with single or double magnet. All these magnetos are true high-tension, having double wound armatures. The SU 4 is a high-tension independent machine which can be used for single ignition or in conjunction with a separate set or battery plugs. The SU 4S is a high-tension with auxiliary apparatus for a vibrating spark dual system. The SU 4D is a high-tension magneto with a non-vibrating spark dual system. The same nomenclature applies to the six-cylinder type.

Motoria to Reign at Show

NEW YORK, Dec. 7—Grand Central Palace will be the Palace of Motoria during the New York show, according to Manager S. A. Miles, who is also chief decorator of the exposition.

To the uninitiated, which includes a very, very large number, Motoria is the goddess who watches over the destinies of the automobile industry and has been visualized in statuary and has graced a number of shows of the past. She is a rather pretty young lady whose outstretched hands grasp a steering wheel. Her draperies blow in the breezes.

To make the interior of the palace beautiful, 25,000 yds. of deep maroon velvet will be festooned with blue and gold about the marble Corinthian and Doric columns. On the main floor the 20 columns which form the central court will be graced with large valences of deep blue edged with gold braid and fringe. Large chandeliers will furnish illumination, each chandelier consisting of 18 balls of fire enclosed in frozen glass.

Dixie Dealers Elated at Business Expansion

**Increase of 50 Per Cent at Present Time
Over Year Ago—Railroads Are
Earning Profits—South
Recovering**

LOUISVILLE, KY., Dec. 6—Southern automobile dealers, branch managers, factory representatives and motor car manufacturers are elated over the remarkable business expansion in Dixie, which is one of the outstanding features of the present prosperity.

A conservative estimate, based on interviews with leading dealers, points to an increase of about 50 per cent in the sales during the past four weeks over the same period last year. Some say they have sold twice as many cars.

In a number of southern states the tobacco and cotton situation has a great influence on the sale of motor cars. Encouragement has been imparted to business generally by the announcement that Great Britain would permit the shipment of tobacco to neutral nations.

The South was hardest hit of any section of the country at the outbreak of the European war on account of the blow to the cotton industry, but now since the South has raised unusually large stocks of grain and hay and increased its herds of livestock and is getting good prices for cotton, prosperity is returning by leaps and bounds.

No better example of the reversal in conditions could be had than railroad earnings, and statements of all the southern roads are showing highly gratifying gains. Earnings of the Louisville & Nashville, for instance, continued to show decreases up until the last week in September, when a turn for the better set in and the increases have mounted so rapidly that the decreases sustained during the first three months of the fiscal year have been wiped out and an increase of \$942,000 shown for the fiscal year up to Nov. 21.

Gross earnings for the third week of November amounted to \$1,060,855, as compared with \$957,260 in the corresponding week last year, and for the first three weeks of November the gross amounted to \$3,526,410, an increase of \$634,870 over the same period last year, and from July 1 to Nov. 21 gross was \$22,490,855, an increase of \$942,103.

For the third week of November the Southern railway reports gross earnings of \$1,314,309, an increase of \$150,469, or 13 per cent. The turn for the better did not set in as early for the Southern as for the Louisville & Nashville, but a big decrease during the first three months of its fiscal year has been overcome and a gain of \$234,778 established.

Other southern roads, especially the Mobile & Ohio and the Chesapeake & Ohio, report substantial increases.

All classes of business are contributing to the increase in earnings, with marked expansion in iron, steel and coal tonnage out of the Birmingham district.

Hold Tractor Demonstration

MADISON, WIS., Dec. 7—A demonstration and exposition of farm tractors will be conducted on the farm of the College of Agriculture of the University of Wisconsin near Madison during the summer of 1916. It will be the first event of the kind to be held in Wisconsin. The promoters include the College of Agriculture, Madison Chamber of Commerce, the agricultural newspapers of the state, the country newspapers of Wisconsin, and the association of farm tractor manufacturers. Rules and regulations to govern the demonstration are now being formulated by the Society of American Agricultural Engineers, of which F. M. White, Madison, is secretary. It is expected that at least 35 and possibly 40 tractor builders will participate in the tests.

New Gas Rules in Minnesota

ST. PAUL, Dec. 6—New rules have been put out by the state fire marshal for the use, handling, storage and sale of gasoline in Minnesota. Gasoline must be kept in 60-gal. cans when kept outside a building under fireproof cover; in 200-gal. lots if within a building utilized for no other purpose, and in 600-gal. lots if in a metal tank of not less than 14-gauge galvanized steel.

Sealed portable filling tanks of not more than 60 gal. capacity may be used inside garages, but these tanks must be of not less than 7-gauge steel supported on wheels. The body of the tank is not to be nearer than 6 in. to the floor and must be provided with an approved pump.

Sixty-seven assistants of the Minnesota oil inspector have been instructed to see that dealers in gasoline state the gravity of the liquid on placards in full view of customers. Chief Andrew J. Rush gives as the reason for this that the commercial value of gasoline is based on its Beaume test. As retailers are charging from 5 to 7 cents more for the 68-70 gasoline than for the 58-60 test, those who are willing to pay for the 68-70 should, he says, know they are getting that quality.

Fuel Company to Rebuild

DENVER, Dec. 7—The Mountain Motor Fuel Co. will build a new \$40,000 plant on the site of its smaller plant which was recently destroyed by fire. The new plant will have about twice the capacity of the old one and will be equipped for refining and compounding lubricating oils.

Dealers Association Is Formed by Toledo Trade

**Wilkinson Made President—Will Cooperate With Other Organizations
for Betterment of Trade
and City**

TOLEDO, Dec. 7—The Toledo Automobile Dealers' Association has been organized by about a score of dealers who are desirous of cooperating in bettering service to their patrons. The new organization will also work in harmony with the Toledo Automobile Club and the Chamber of Commerce toward the betterment of traffic conditions.

The officers of the new organization are: President, E. A. Wilkinson; vice-president, M. R. Hines; secretary, J. W. Banting, and treasurer, Claude L. Sturtevant. At the preliminary meeting 14 of the dealers affixed their names to the membership rolls and 16 others express a willingness to join.

In speaking of the objects of the organization, President Wilkinson said: "The business side of our meetings will be to study the problems that confront any of our brother members. We will be glad to aid any member in solving difficulties. The social side of our meetings will be to give various entertainments and get-together events. Every dealer has caught the spirit of the organization and is working for its success."

Reuschaw Predicts Price Increase

ST. LOUIS, MO., Dec. 3—A general advance in the price of automobiles during the season which will be started at the New York and Chicago shows was predicted by R. C. Reuschaw, general sales manager of the Reo Motor Car Co., Lansing, Mich., in an address before about three-score Reo dealers from eastern Missouri and southern Illinois during the annual Reo meeting.

Reuschaw pointed to the heavy advance in the cost of metals used in the manufacture of automobiles for justification of his conviction that prices would move upward in 1916.

"We contracted for tool steel at 45 cents a pound and it has advanced to \$3 a pound," he said. "Aluminum has advanced during the last year from 23 cents to 75 cents a pound, and the cost of most other metals has gone up proportionately." He pointed out the shortage in railroad cars and warned the dealers to lay in a stock of cars this winter if they hoped to deliver in the spring.

George T. Riddle, president of the Franklin Bank of St. Louis, followed up Reuschaw's advice with the suggestion that the dealers borrow from the banks in their home communities to finance their advance purchases of automobiles.

Association News

CANADIANS ORGANIZE

SHERBROOKE, QUE., Nov. 27—At a meeting of the automobile and accessory dealers of the Eastern Townships, held the past week, it was decided to organize an association similar to the trade associations which have been organized in other sections of Canada and the United States. It is expected that every automobile and accessory dealer in the Eastern Townships will join this association, which will be known as Eastern Township Trade Association. The following officers were elected: President, J. W. McKee; vice-president, J. F. O'Donnell; treasurer, H. J. Placey; secretary, R. A. Webster. Directors: G. A. LeBaron, R. Deragon Waterloo and Chelsley Coaticook. Another meeting will be shortly held when consideration will be given to by-laws to be proposed by the directors and other matters pertaining to the welfare of the association.

FORT DODGE SHOW FEB. 29

FORT DODGE, IA., Dec. 6—The Fort Dodge Automobile Association announces that it will hold its fifth annual show at the Railway Terminal building, Feb. 29 to March 4, 1916, inclusive. Over 20,000 ft. of floor space is available for exhibit space and the Fort Dodge boosters for the show are advertising it as "the biggest little automobile show in the world."

Michigan Convention Jan. 20-21

DETROIT, Dec. 7—The annual convention of the Garage Owners Association of Michigan will be held Jan. 20-21, in the Hotel Statler, Detroit. It will open at 10 a. m. Detroit time, the 20th; noon lunch, 20th; business sessions morning and afternoons. The evening of the 20th will be left open so delegates may attend the Detroit show, which will be held that week. The annual banquet will be held the night of the 21st.

PORTLAND SHOW FEB. 21

PORTLAND, ME., Dec. 4—At a meeting of the Portland Automobile Dealers Association held this week, plans were made for the annual show, which will be held during the week beginning Feb. 21. It will be held in the new Exposition building on Park avenue.

All Philadelphia Members to Show

PHILADELPHIA, Dec. 6—Every one of the 59 members of the Philadelphia Automobile Trade Association will exhibit at the coming annual show in January. The order of selecting spaces will differ materially from previous methods

in that it will invariably depend on priority of membership in the association. A number of accessory dealers and manufacturers are to take part. Among the principal features of the show, which will be held in the city's large auditorium, are broad aisles, lounging rooms, smoking and refreshment rooms.

SPRINGFIELD SHOW ON

SPRINGFIELD, MASS., Dec. 6—The first real motor show ever held by the Springfield dealers opened this evening. There was a large attendance. Nearly all the dealers and accessory men in town have space.

MONTREAL TRADE OFFICER DIES

MONTREAL, QUE., Dec. 3—C. M. Bennett, 31, sales manager of the automobile department of the McLaughlin Carriage Co., died this week after a second operation. Bennett was one of the best known men in the trade in Montreal. He came to Montreal a little over a year ago. He was a director of the Montreal Automobile Trade Association and was a moving spirit in runs and other activities. His widow and one son survive.

INDUCED DEALERS TO ATTEND LUNCH

DES MOINES, IA., Dec. 6—When the members of the Iowa Automobile Business Association failed to attend the organization's noon lunches a plan was proposed which has thus far brought about a good attendance. The plan is this: Two committees were appointed to take up the plan with the dealers and endeavor to collect \$5 from each dealer to cover luncheons for a certain period for a designated day each week. Each committee got \$5 from all the dealers called on with one exception, and now that the luncheons are paid for in advance the increase in interest is considerable.

Dealers Form Used Car Exchange

TROY, N. Y., Dec. 6—To handle their used car business, dealers of this city have formed the Troy Used Car Corp. The committee which is consummating the plans consists of Scott D. Nichols, Bert Listman, John N. Edwards, Myron W. Adams and George H. Snyder.

WANT A LIEN LAW

OAKLAND, CAL., Dec. 6—After the first of the year the garagemen who are affiliated with the California Automobile

Industries Association will father a lien law and endeavor to pass it. A meeting of the association will be held at Santa Cruz, Dec. 16, at which these counties will be represented: Alameda, San Joaquin, Sacramento, Stanislaus, Santa Clara, San Mateo, Santa Cruz, San Francisco, San Benito, Monterey, Merced, Contra Costa and Sonoma. A banquet will be held at the St. George hotel in the evening.

A new repair order system, originated by Secretary Herbert S. Smith, has been approved. A collection system has been installed by the organization whereby the names of debtors whose accounts are six months past due are carried on a delinquent list.

The accessory jobbers have been interested in the price situation and are endeavoring to induce their customers to maintain prices. A five-car rule has been put into effect in Oakland. Under this, any operator who uses more than five cars and pays for their use is entitled to a commercial price in garages. Storage rates have been changed slightly and in Oakland now are: Per month, business section, \$7.50 and up; residence section, \$5 and up; night storage, 50 cents and \$2.50 per week.

Cars in Electrical Show

LOUISVILLE, KY., Dec. 3—Prominent among the features of the Electrical Prosperity Exhibition, held here this week at the Armory, was the exhibition of automobiles. The booths included from one to three models of the various makes. Many sales were reported. The following cars were shown:

Velie, Mitchell, Hollier, Cadillac, Oakland, Saxon, Stearns, Maxwell, White, Chandler, Scripps-Booth, King, Packard, Hudson, Dodge, Detroit electric, Milburn electric and Ohio electric.

Garage Regulations Suggested

CLEVELAND, Dec. 7—In an improved regulation for the construction of garages, which may become a law in this city, it is provided that garages be so constructed that they can be well ventilated. If only a part of the building is used as a garage the dividing masonry wall shall be at least 8 in. thick, there shall be a 4-in. fireproof floor and a 3-in. fireproof ceiling. If a steel frame is used the steel need not be fireproof. The restrictions are more rigid in case a building exceeds one story.

Must Register Iowa Cars by April

DES MOINES, Dec. 6—W. S. Allen, Iowa secretary of state, has ruled that only those car owners who will not use their cars in 1916 will be relieved of the necessity of registering their machines before April 1. Under the old law, owners who did not intend to use their cars before June or July were not re-

quired to register their machines before that time, but the new law requires registration before April 1 if the car is to be used at any time during the year.

Gas Goes Up in Denver

DENVER, Dec. 6—The price of gasoline continues to rise. It is now selling at 20 cents, having advanced 1 cent this week, the third jump in two weeks and the eighth in less than six months.

Gas Ascending in Tacoma

TACOMA, WASH., Dec. 6—During the past month the price of gasoline has steadily advanced, making a jump of 1 cent each week, until Dec. 1 it reached a retail price of 15½ cents. This is the highest gasoline has been on the coast for several years.

Another Rise in Los Angeles

LOS ANGELES, Nov. 29—The price of gasoline advanced another cent throughout southern California today, now selling for 15 cents where it sold for 11 cents but a few weeks ago. It is claimed by fuel experts that the price will reach 20 cents before Jan. 1.

After Short Measure Men

BOSTON, Dec. 6—Thure Hanson, commissioner of weights and measures for Massachusetts, plans to make dealers in oils and gasoline give full measure. His investigators have found discrepancies in the weighing and measuring which can be traced back to the manufacturers. The state investigators have been buying cans of oil and other liquids at various accessory houses throughout the state.

Most of these cans were short by from 1 to 4 fluid ounces. The loss to the buyer in some instances was as high as 14 cents a can. Commissioner Hanson does not intend to prosecute the retail dealer first, but will notify him first.

The manufacturer will be notified to give full measure or he will be prohibited from selling his goods in Massachusetts. As a number of the makers are out of Massachusetts, the prosecution will eventually fall upon the dealer unless he refuses to handle the goods. The commissioner says he estimates that the buyers lose from \$25,000 to \$50,000 a year on these underweight products.

December is "Quad Month"

KENOSHA, WIS., Dec. 6—December has been designated by the Thomas B. Jeffery Co. as "Quad Month" and is being celebrated as such by all Jeffery dealers. An extensive advertising campaign is being conducted by the factory and demonstrations are being made by dealers. The purpose of the "Quad Month" is to bring to the attention of prospective users the ability of the truck in transportation work.

Dealer's License Taken Away Because of Contest

Joseph Donovan Incurs Displeasure of
Highway Commission—He and
His Cars Are Tied Up
for a Week

BOSTON, Dec. 4—The license of the Donovan Motor Car Co., Studebaker distributor, was today suspended for one week, and the licenses of Edward P. Sheehan, Boston, and Milton W. Reed, Lynn, were suspended for two weeks as an aftermath of the recent 1,000-mile reliability run of the Studebaker car here. It is the first time that the license of any dealer has been suspended.

The Highway Commission has served warning that hereafter any participants in reliability runs in which speed is a factor will be dealt with very severely. The action was a big surprise to the Boston dealers and will be so to others throughout the state. While the law does not put a limit on the speed of a driver, merely saying that he must drive reasonably and properly according to traffic conditions, there is another little section that was overlooked by Joseph S. Donovan when he started his car in its test. This section has a clause reading:

"Whoever . . . operates a motor vehicle for the purpose of making a record and thereby violates any provisions of sections 16 and 17 of this act, etc. shall be punished by a fine of not more than \$200 or by imprisonment for a term of not less than 2 weeks nor more than 2 years or both such fine and imprisonment."

Sections 16 and 17 refer to speed regulations. While neither of the drivers were in court, the Highway Commission has the authority to deal with cases like theirs, and as the feat of the Studebaker got such wide publicity the members of the commission decided it was time to call a halt on future tests. The commission received a number of letters about the run and so it summoned the drivers and Donovan before it for an investigation before it acted. So today the commission made its finding and it issued the following statement:

"The Massachusetts Highway Commission today suspended for a period of two weeks the licenses of Edward P. Sheehan, of Boston, and Milton W. Reed, of Lynn, because they operated an automobile for the purpose of making a record; and it also suspended for a period of one week the dealer's registration certificate of the Donovan Motor Car Co., of Boston, the owner or concern in control of the automobile in question.

"It appeared from newspaper accounts that on November 10, 1915, a Studebaker car was operated upon the highways of Massachusetts and adjoining states at an extremely high rate of speed. A hearing was given by the commission today, at which it appeared from

the testimony that the car was operated under orders of the manager of the Studebaker company for the purpose of making an endurance record, and that an average speed of more than 30 miles an hour was maintained for the greater part of the distance.

"Such use of the highway is contrary to law, which prohibits the operation of automobiles on the highways for the purpose of making a record; and the commission desired to take this occasion to call the attention of all automobile agents and operators of motor vehicles to the fact that no automobile tests, records or races will be permitted on the highways of this commonwealth.

"As this is the first case of this kind that has been called to the attention of the commission, it has made short suspensions, because the parties were somewhat ignorant of the law and of their rights in the premises, and the commission feels that the parent corporation was more responsible than the operators or agent, who were acting under orders of the parent company.

"The commission hopes that the newspapers will give this case full publicity, so that the public will have full notice of it, and of the fact that future cases of this kind will not deal with as leniently."

Following the receipt of the communication, Joseph S. Donovan, president of the Donovan Motor Car Co., prepared to obey the mandate of the Highway Commission. In revoking his certificate of registration it means that all next week no motor vehicle under his control may be operated in Massachusetts. It also means that he cannot drive a car himself or have any of his chauffeurs drive him around in any of his cars. In other words, it means a vacation for his drivers. Of course, he will not have to close up his service station or his salesroom, and customers may have work done on their cars, and his drivers, except those whose licenses were suspended, may drive the customers' cars to and from their places.

The fact that the Studebaker Corp. has a big New England branch will make it easier for Donovan than it might otherwise be, for cars owned by the parent company may be used by him. But he intends to live up to the decree of the commission, because he feels that unless he does he may be hit harder. Moreover, there is a penalty for allowing cars under the ban to be operated which provides for a fine or not more than \$100 or by imprisonment for a term of 10 days, or both such fine and imprisonment. And such conviction would meet with a longer suspension by the commission for all concerned.

Grinnell Electric Discontinued

DETROIT, Dec. 6—The Grinnell Electric Car Co., which started business in 1910 and made the Grinnell electric, has discontinued the manufacture of this car.

Simplified System

Page 5

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

E. W. Pans has been made manager of the Indianapolis district for the Studebaker Corp.

H. Lee Smith, former manager of the Kelly-Springfield branch in St. Louis, will become manager of the Mohawk Tire Co.'s branch in Chicago Jan. 1.

George Kelly, formerly with the Baker R. & L. Co., has entered the truck sales department of the White Co., Cleveland.

Charles Johnson has been made factory equipment manager by the Lovell-McConnell Mfg. Co., Newark, N. J. His headquarters are at the company's Detroit branch.

B. E. Atwood, for a number of years with the Cleveland branch of the Ford Motor Co., is now with the Coate Motor Co., 6016 Euclid avenue, Cleveland, distributor of the Paige and Pullman, as secretary and manager.

Paul Moore has been appointed advertising manager of the Service Motor Truck Co., Wabash, Ind. He comes from the advertising department of the Wels Fibre Container Corp., Monroe, Mich., and was connected for three years with the advertising department of the National Cash Register Co., Dayton, O.

Fred I. Willis has joined the Central Rubber & Supply Co., Indianapolis, and will have charge of the automobile and bicycle accessories departments.

L. E. Hann, who has been head salesman for the Maxwell Motor Sales Corp., New York, has resigned to become sales manager of the R. E. Laughney Motor Co., 5944 Baum boulevard, Pittsburgh, Pa., distributor of the Maxwell in that territory.

Frank P. Bawden, formerly receiver of the Child, Day & Churchill Automobile Supply Co., Spokane, has been appointed factory representative in the Inland Empire for the Willys-Overland Co. Bawden will make his headquarters with the Harry L. Olive Co., Overland representative in Spokane.

Jack Griffin, former Los Angeles newspaper man, has been appointed special western factory representative of the Maxwell, with headquarters in San Francisco. His territory embraces California, Oregon, Washington, Idaho, Montana, Utah, Nevada and Arizona.

W. H. Carey has resigned his position with the Kelly-Springfield Tire Co. in San Francisco and has removed to Portland to take charge of the Portland agency, which is operated in conjunction with the Oregon Motor Car Co.

Walter M. Bieling has resigned as sales manager of the Premier Motor Mfg. Co., Indianapolis, and joined the sales organization of the Nurdyke & Marmon Co. The change took place on Monday, when Bieling returned from a three months' trip to the Pacific Coast.

E. A. Hamlin, who recently won the first prize in the Rice Leaders of the World contest for the largest volume of retail sales of Overland cars for the 1915 season, has been appointed San Francisco sales manager for J. W. Leavitt & Co., Pacific Coast distributor of Overland products.

E. W. Aument has resigned as superintendent of the Rock Falls Mfg. Co., Sterling,

Ill., to become general manager of the Michigan Hearse & Motor Co., Grand Rapids, Mich.

Moline Plow Buys Cultiplov

COLUMBUS, O., Dec. 7.—The Moline Plow Co. has purchased the manufacturing rights for the Universal Cultiplov heretofore produced by the Universal Tractor Mfg. Co., though it has not taken over this company. The Universal company will discontinue. F. B. Funk is engineer and factory manager of the tractor department of the Moline Plow Co., and S. C. Turkenkoph will be assistant to the sales manager of all departments and the company's tractor expert. The Moline company will build tractors on a much larger scale than possible by the Universal Tractor Mfg. Co.

Denby Truck Triples Capital

DETROIT, Dec. 4.—The Denby Motor Truck Co. will increase its capital stock from \$250,000 to \$750,000, of which \$500,000 will be common stock and \$250,000 preferred. The present capital is all common. None of the new stock is to be placed on the market. It is said that the greater part of it has been subscribed for by the present stockholders, President Garvin Denby and his brother Edwin, treasurer, having a majority.

Studebaker Making Additions

DETROIT, Dec. 4.—The plant of the Studebaker Corp., at West Jefferson and Clark avenues, will be greatly enlarged; a permit for a steel frame and concrete addition, to cost \$35,000, has been secured.

United Truck Man Goes Abroad

GRAND RAPIDS, MICH., Dec. 7.—E. M. Elliott, of the United Motor Truck Co., will sail December 11 for Europe to observe United trucks in action in England and on the Continent.

Geo. P. Sweet has been made general manager to succeed Elliott. Sweet returns from Detroit, where he has been engaged for several years in the manufacturing business.

Another appointment is that of George H. Duck as general sales, advertising and factory manager of the United Motor Truck Co. Duck has been with the company since September.

12,000 Packards in 1916

ST. LOUIS, Dec. 7.—The 1916 Packard output will be 12,000, an increase of 4,500 or 60 per cent over 1915, announced H. H. Hills, general sales manager of the parent company, at a meeting of middle west dealers here today. This preparation for an expected increase in sales was endorsed by the dealers, all of whom reported the return of prosperity and an unprecedented demand for automobiles in their respective territories. Dealers from 24 leading cities met the factory officials and exchanged views as to delivery, output and service possibilities for 1916.

Dealers were present from Kansas City, Oklahoma City, Tulsa, Louisville, Memphis, Knoxville, Little Rock, Evansville, Ind., and many smaller cities. Factory representatives Hills and George R. Bury, Carriage Sales Manager F. J. Moore, Superintendent of operation O. E. Brown and District Manager Moore told in detail of the development of the twin-six. The factory men departed tonight to hold a similar meeting in Dallas for dealers of the Southwest.

Automobile Week Draws Big Crowds to El Paso

**Dealers Achieve Success in Shows Held
Simultaneously in Each Salesroom**

**—Visitors from Wide
Territory**

EL PASO, TEX., Dec. 7.—Visitors to El Paso from all parts of the Southwest, the home people, the dealers and every one else are delighted with the entertainment and success that attended the week devoted to showroom displays of cars, trucks and accessories. It was known as "El Paso Automobile Week," and the program was brought to a close November 27. The arrangements for the exhibition were in charge of a committee of which H. M. Hatcher was chairman. Various subcommittees were appointed. Instead of concentrating the exhibits in a single showroom, it was decided to have each dealer make an individual display at his regular place of business. The plan met with warm favor and brought about a friendly spirit of rivalry. The dealers represented were:

Cadillac Sales Co., Cadillac and Oldsmobile; Western Battery Co., batteries and electrical equipment; Motor Car Supply Co., Savage tires and Johns-Manville accessories; Cleveland Square Garage, modern methods of repairing.

C. D. Freeman, Michelin tires and accessories; Buquor Motor Car Co., Maxwell; Boss Rubber Co., Kelly-Springfield and G. & J. tires; Tri-State Motor Co., Ford cars, Firestone tires and accessories.

Rio Grande Oil Co., Pennsylvania tires, oil and gasoline; H. M. Hatcher, used cars; Saxon Motor Car Co., Saxon; Quick Tire Service, United States tires; El Paso Auto Supply Co., Congress and Pullman tires and accessories.

El Paso Auto Sales Co., Mitchell and Winton; Goodyear Tire & Rubber Co., factory branch; Auditorium Garage, accessories.

Mission Garage, Marlon and accessories; International Motor Co., Enger, Packard and Buick; Double Service Tire Co.; Marker & Yonge, repairshop.

Pioneer Motor Co., King, Briscoe and Argo and Denby trucks; Franklin Motor Car Co., Franklin car and Simplex trailer; Oakland Auto Sales Co., Oakland car, International truck; Borderland Auto Sales Co., accessories and Lee tires; Southern Motor Co., Haynes and Jeffery.

Nauman Motor Sales Co., Hudson and Reo and G. M. C. truck; Myers Co., Chevrolet and Monroe; Modern Auto Co., used cars and garage; El Paso Overland Auto Co., Overland and Willys-Knight, Garford truck and Federal tire; Krakauer, Zork & Moye, accessories.

Western Motor Supply Co., Fisk tires and accessories; Valley Implement and Vehicle Co., Moreland trucks; Elliott-Garrett Co., Studebaker and National car and Wichita truck; Lone Star Motor Co., Dodge Bros., Chalmers, Chandler and Hupmobile.

Parker Garage; Brittingham Garage; El Paso Battery Station; El Paso Speedometer Service Station, Stewart-Warner products and Master carbureters; Jitne Garage; El Paso Rubber Co., Goodrich and Diamond tires; Apperson Salesroom, Apperson.

PREMIER IS SOLD TO SYNDICATE

INDIANAPOLIS, Dec. 1—The plant of the Premier Motor Mfg. Co. has been sold to a syndicate represented by F. W. Woodruff, banker, of Joliet, Ill., for \$125,000, the sale being confirmed by the court here today. The bid of the syndicate for the property, which included all the plant except the real estate, was filed with Frank E. Smith, trustee in bankruptcy of the company, who announced on Saturday that the plant had been sold.

The interests represented by Woodruff propose to refinance and to revamp entirely the Premier organization and to continue the manufacture of the Premier car. It is understood that sufficient capital is back of the organization to make the Premier concern an important factor in the industry.

Storm Buggy Co. Sold

FOSTORIA, O., Dec. 6—The Fostoria Light Car Co., recently incorporated with an authorized capital of \$500,000, has taken over the holdings of the Storm Buggy Co., of Fostoria. The concern is now turning out five cars daily.

National Rubber Building

POTTSTOWN, PA., Dec. 6—The National Rubber Co. is building a two-story reinforced concrete factory and a one-story power house. The former will be 135 x 170 and the latter 45 x 120.

Sager Acquires More Room

ROCHESTER, N. Y., Dec. 6—The J. H. Sager Co. has located at 36 South Water street, where it has about three times as much room as in its former quarters.

Gerlinger Adds Cash Capital

PORTLAND, ORE., Dec. 6—To provide cash for expansion the Gerlinger Motor Car Co. has increased its capital stock from \$50,000 to \$100,000. The plant will put out ten Gersix trucks a month, commencing Jan. 1.

Ship \$2,627,000 of Cars and Trucks

NEW YORK, Dec. 6—Exports of cars, trucks, tires and parts during the week ending Nov. 20 from this city to Europe, amounted to \$2,627,000, as follows: Trucks, \$1,479,000; cars, \$547,000; parts and tires, \$574,000.

Chevrolet May Build in St. Paul

ST. PAUL, Dec. 6—It is reported the Chevrolet Motor Car Co. will erect a \$500,000 assembling and storage plant for the Northwest at Emerald and University avenues, near the new Overland Stores Co. and the Twin City Four Wheel Drive Co. plants. The proposed site fronts 264.14 ft. on University avenue and is 503 ft. deep. It is said the building will be four stories, of steel and brick construction, with trackage on the Minnesota Transfer Railway. The Minnesota Motor Car Co., distributing the Chevrolet car, is erecting a new sales-room at Nicollet avenue and 16th street, Minneapolis.

New Heater Company Formed

GRAND RAPIDS, MICH., Dec. 6—The Auto Exhaust Heater Co. has been organized to make a device to be used for heating automobiles. Those interested are Don McAfee, Frank Veit, T. Johnson, Frank Mathison and Neil Kunst.

Factory News of the Week

SPARTON BUYS RADIATOR FACTORY

JACKSON, MICH., Dec. 6—The Sparks-Withington Co. has completed arrangements for the purchase of the factory, equipment and good-will of the Cleveland Automobile Radiator Co., Cleveland, O., which has manufactured honeycomb radiators. The equipment will be moved to this city and installed in the old Sparks-Withington plant, where the manufacture of honeycomb radiators will be begun. Quantity production will be under way by Feb. 1. The Sparks-Withington Co. is breaking ground for a large addition to its plant, part of which will be for radiator manufacture.

Standard Adds 2-Ton Model

DETROIT, Dec. 6—The Standard Motor Truck Co. has placed on the market a new 2-ton worm-driven truck which is a new departure, owing to the fact that it has always confined its efforts to the manufacture of 3- and 5-ton types. The Standard company after the first of the year will bring out a new 1- and 1½-ton model.

Hupp Refinancing Plan Approved

DETROIT, Dec. 6—The stockholders of the Hupp Motor Car Co. have approved the plan of refinancing and expansion, which was reported in Motor World Nov. 24, whereby the assets and business of the Hupp company are taken over by the Hupp Motor Car Corp., incorporated under the laws of Virginia. The control of the organization has been obtained by the old stockholders, and the officers of the corporation are: President, J. Walter Drake; vice-president and secretary, Joseph R. Drake; treasurer, Edwin Denby.

Jones Adds New Models

WICHITA, KAN., Dec. 6—The Jones Motor Car Co. is bringing out three new models, two of which will appear on six-cylinder chassis with 122-in. wheelbase, a seven-passenger touring car and a roadster; the third model is a five-passenger touring car, on a 110-in. wheelbase chassis and uses a small six motor. W. A. King is production manager and chief engineer of the company and N. A. Wise has been appointed chief engineer and also assistant production manager.

Mason Motor Plant Partly Ready

FLINT, Dec. 6—The new plant of the Mason Motor Co., which makes the motors for the Chevrolet company and is controlled by it, is nearly completed and part of it will be operated within a few days.

Men are being added as fast as it is possible to accommodate them and by next April at least 1,000 will be added to the force at this motor plant alone. At the Chevrolet car plant it is expected to add 500 or more. William C. Durant is now president of the Chevrolet Motor Co. of Delaware, recently incorporated.

FORM MID-WEST SECTION S. A. E.

CHICAGO, Dec. 6—Formal organization of the new Mid-west Section of the Society of Automobile Engineers, with headquarters in Chicago, has been completed by members from Illinois, Indiana, Wisconsin, Minnesota, Iowa and northern Indiana. Permanent officers are: Chairman, F. E. Place, vice-president, the Buda Co.; vice-chairman, J. W. DeCou, factory manager, Thomas B. Jeffery Co.; treasurer, Charles W. Steiger, president, Stromberg Motor Devices Co.; secretary, Darwin S. Hatch, editor, Motor Age; assistant secretary, H. L. Connell, Central Continuation School, Milwaukee. The governing board consists of the above officers and Daniel Rosch, assistant professor of experimental engineering, Armour Institute of Technology.

Hyatt Men Move About

DETROIT, Dec. 6—L. R. Remington, formerly in charge of the Hyatt service branch in Atlanta, Ga., has been made service manager in Chicago. He succeeds J. R. Phillips. R. B. Campbell, recently manager of the service branch in Detroit, goes to Atlanta to take charge of the work in that territory. J. W. Taylor, a new man in the Hyatt organization, has been made service manager in Detroit.

Commerce to Increase Stock

DETROIT, Dec. 4—The Commerce Motor Car Co., maker of the Commerce truck, has decided to increase the capital stock of the company from \$100,000 to \$200,000. A meeting of the stockholders will be held Dec. 14, at which they will be asked to decide whether a stock dividend of 50 per cent, as recommended by the directors, be paid to stockholders of record Dec. 15. The earnings of the company are expected to total about \$70,000 this year, which is 70 per cent of the former capital stock. It is not likely that cash dividends will be paid for some time, but it is possible that another stock dividend of 33⅓ per cent will be paid early next year.

The Commerce company started in 1910 and has been making trucks only. This year its business has been exceptionally good. According to the officers of the company its sales have been 150 per cent better than during any previous year.

Chevrolet Branch in Kansas City

ST. LOUIS, MO., Dec. 6—Reports from Kansas City that the Chevrolet Motor Co. plans to erect an assembling plant in that city were confirmed here today by Russel E. Gardner, Jr., vice-president of the St. Louis Chevrolet Co. Gardner added, however, that while the Kansas City branch will supply only the trade in the Kansas City district, the St. Louis factory will be the center of Chevrolet activities in the Middle West.

Ford Behind on Deliveries

DETROIT, Dec. 2—At the close of this business day the Ford Motor Co. had orders on its books for immediate delivery for 105,289 cars, which, however, does not include cars to be shipped this month. In other words, this represents the number of cars ordered but for which the company is behind on deliveries. Since the beginning of the 1916 fiscal year, that is, since Aug. 2, approximately 140,000 Fords have been made and shipped.

MANSFIELD WINS RUBBER SUIT

NEW YORK, Dec. 6—The Appellate Division of the Supreme Court has affirmed the decision given to the Mansfield Tire & Rubber Co. by a supreme court jury in a suit for \$35,000 brought by J. H. Rossbach & Bros., rubber importers. The Mansfield company, which is located in Mansfield, O., repudiated a contract for crude rubber and elected to go to court to prove that it was justified in its action. The suit was filed two years ago.

Warm Hand Wheel Sold

POUGHKEEPSIE, N. Y., Dec. 6—The Pouvaillsmith Corp., capitalized at \$2,500,000, has been organized and has purchased the condensate department of the Essex Rubber Co., Trenton, N. J. Condensate is a chemical product of formaldehyde and carbolic acid and is a non-conductor with a highly polished surface. It is used in the manufacture of steering wheels and other products.

The Pouvaillsmith Corp. will also absorb the Warm Hand Steering Wheel Corp., of this city. Three buildings, 340 x 60, will be erected immediately and the company will begin operations with about 100 employees.

Strike in Knox Plant

SPRINGFIELD, MASS., Dec. 4—E. J. Zoerb, the business agent of the machinists' union, called a strike at the plant of the Knox Motors Co. plant this morning and about 65 machinists went out. The union officials claim that they wanted time and a half for overtime work, but that the company would not grant the demand. The company officials claim that they were willing to grant this when the majority of its workers requested it.

Jeffery Enlarging Plant

KENOSHA, WIS., Dec. 6—The Thomas B. Jeffery Co., Kenosha, Wis., has begun work on two factory buildings, each three stories high. The company has been working night and day and is at this time employing 2,500 men, compared with 1,300 on the payroll a year ago.

May Pay All L. P. C. Debts

RACINE, WIS., Dec. 6—Under an arrangement effected by creditors of the L. P. C. Motor Co., Racine, Wis., which made a voluntary assignment some time ago, it is believed that all debts will be paid in full and the business rehabilitated without the loss of a cent to creditors. As was announced at the time of the assignment, the company practically closed a large contract for cars and similar material. The Corliss Steel Co., of Racine, has been organized by F. Lee Norton, the assignee; Capt. William Mitchell Lewis, president, L. P. C. Motor Co., and Herbert F. Johnson, to handle this contract as well as take over the business of the L. P. C. and assume the liabilities. It is proposed to use a large part of the former plant of the defunct Wisconsin Engine Co. at Corliss, Racine county, to which location the L. P. C. shops will be moved within a short time.

Simplified System

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Coming Events

*Indicates sanction by A. A. A.

- Dec. 9.....Des Moines, Ia., Convention. Iowa Retail Automobile Dealers Assn.
- Jan. 7, 8, 10, 11..New York, Meeting National Assn. of Automobile Accessory Jobbers.
- Jan. 20-21.....Detroit, Convention of Garage Owners Assn. of Mich., Hotel Statler.
- Jan. 25.....Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
- Jan. 26-27.....Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
- Feb. 21-26.....Countrywide Electric Prosperity Week.
- May 13.....New York City, Sheephead Bay Speedway race meet.
- May 30.....Indianapolis, Ind., Track race meet.
- June 17.....Chicago, Ill., Speedway race meet.
- June 28.....Des Moines, Ia., Speedway race meet.
- July 4.....Minneapolis, Minn., Speedway race meet.
- July 4.....Sioux City, Ia., Speedway race meet.
- July 15.....Omaha, Neb., Track race meet.
- Aug. 5.....Tacoma, Wash., Track race meet.
- Aug. 18-19.....Chicago, Ill., Elgin road race.
- Sept. 4.....Des Moines, Ia., Track race meet.
- Sept. 15.....Indianapolis, Ind., Speedway race meet.
- Sept. 16.....Providence, R. I., Track race meet.
- Sept. 30.....New York City, Sheephead Bay Speedway race meet.

THE SHOW CIRCUIT

- Dec. 6-11.....Springfield, Mass., Show, Auditorium. H. J. Stacy, manager.
- Dec. 31-Jan. 8..New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
- Jan. 1.....Springfield, Mo., Show, Springfield Motor Car Dealers Assn.
- Jan. 3-9.....New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
- Jan. 7-13.....Milwaukee, Show, Milwaukee Automobile Dealers, Inc., Auditorium.
- Jan. 8-15.....Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn., Convention Hall.
- Jan. 8-15.....Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
- Jan. 10-15.....New Bedford, Mass., Show, State Armory.
- Jan. 14-22.....Dayton, Dayton Automobile Dealers Assn. Show, Delco building.
- Jan. 15-22.....Detroit, Mich., Show, Detroit Automobile Dealers Assn.
- Jan. 17-24.....Wilmington, Del., Second Annual Show, Wilmington Automobile Trade Assn., Hotel Du Pont. J. H. Nixon, chairman.
- Jan. 17-22.....Rochester, N. Y., Show, Exposition Park. C. A. Simons, manager.
- Jan. 18-22.....Lancaster, Pa., Show, Conestoga Park Pavilion.
- Jan. 18-22.....Baltimore, Md., Show, Baltimore Automobile Dealers Assn., Fifth Regiment Armory.
- Jan. 22-29.....Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.

- Jan. 22-29.....Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 22-29.....Montreal, Can., Show, Montreal Automobile Trade Assn., Almy's Building.
- Jan. 23-30.....Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.
- Jan. 24-29.....Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
- Jan. 24-29.....Scranton, Pa., Sixth Annual Show, Pleasure Cars, Town Hall. Hugh B. Andrews, manager.
- Jan. 29-Feb. 5..Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
- Jan. 29-Feb. 5..Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
- Jan. 31-Feb. 5..Fall River, Mass.; Show: Raymond C. Borden, Mgr.; State Armory.
- Jan. 31-Feb. 1-2.Scranton, Pa., Commercial Car Show, Town Hall. Hugh B. Andrews, manager.
- Feb. 7-12.....Kansas City, Mo., Show, Kansas City Motor Car Dealers Assn., Convention Hall.
- Feb. 9-12.....Peoria, Ill., Show, Peoria Automobile & Accessory Assn., Coliseum.
- Feb. 14-19.....Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
- Feb. 19-26.....Newark, N. J., Show, First Regiment Armory. C. L. Fitzgerald, manager.
- Feb. 20-27.....Grand Rapids, Mich., Seventh Annual Show, Grand Rapids Auto & Accessory Dealers Assn., Klingman Bldg.
- Feb. 21-26.....Bridgeport, Conn., Third Annual Show, State Armory. B. B. Steiber, manager.
- Feb. 21-26.....Louisville, Ky., Show, Louisville Automobile Dealers Assn., Kentucky First Regiment Armory.
- Feb. 21-26.....Omaha, Neb., Eleventh Annual Show, Omaha Automobile Assn., Clark G. Powell, manager.
- Feb. 21-26.....Syracuse, N. Y., Show, Syracuse Automobile Dealers Assn.
- Feb. 21-26.....South Bethlehem, Pa., Show, Coliseum. James L. Elliot, manager.
- Feb. 29-Mar. 4..Fort Dodge, Ia., Fifth Annual Show, Fort Dodge Auto Dealers Assn., Terminal Building.

Motor Car Securities Quotations

	Dec. 4, 1914	Dec. 4, 1915
	Bld. Asked	Bld. Asked
Ajax-Grieb Rubber Co., com.....	250	.. ..
Ajax-Grieb Rubber Co., pfd.....	160	.. ..
Chalmers Motor Co., com.....	94	150 160
Chalmers Motor Co., pfd.....	97	102 104
Chevrolet Motor Co., com.....	..	130 132
General Motors Co., com.....	75	17 490
General Motors Co., pfd.....	85	87 1/2 116 1/2
B. F. Goodrich Co., com.....	26	27 73
B. F. Goodrich Co., pfd.....	88	.. 111 112
Goodyear Tire & Rubber Co., com.....	185	330 325
Goodyear Tire & Rubber Co., pfd.....	88 1/2	100 110 112 1/2
International Motor Co., com.....	..	34 35
International Motor Co., pfd.....	..	60 65
Kelly-Springfield Tire Co., com.....	85	96 74 1/2
Kelly-Springfield Tire Co., 1st pfd.....	75	90 97 98
Kelly-Springfield Tire Co., 2nd pfd.....	90	95 74 1/2
Maxwell Motor Co., com.....	13 1/2	14 1/2 74 1/2
Maxwell Motor Co., 1st pfd.....	43	44 99
Maxwell Motor Co., 2nd pfd.....	16 1/2	17 1/2 55
Miller Rubber Co., com.....	..	240 245
Miller Rubber Co., pfd.....	..	111 113
Packard Motor Car Co., com.....	100	145 148
Packard Motor Car Co., pfd.....	80	.. 101 104
Paige-Detroit Motor Car Co., com.....	..	700 ..
Peerless Motor & Truck Corp., com.....	..	24 1/2 34 1/2
Portage Rubber Co., com.....	..	60 65
Portage Rubber Co., pfd.....	..	80 100
Regal Motor Co., pfd.....	10 1/2	11 1/2 23 25
*Reo Motor Truck Co., com.....	21 1/2	22 1/2 54 53 1/2
*Reo Motor Truck Co., pfd.....	47	48 86 88
Stewart-Warner Speed. Corp., com.....	97	100 106
Stewart-Warner Speed. Corp., pfd.....	49	52 93 153 1/2
Studebaker Corp., com.....	35	37 56 57
Swinehart Tire & Rubber Co., com.....	82	85 88
U. S. Rubber Co., com.....	45	47 54 56
U. S. Rubber Co., 1st pfd.....	95	97 107 109
White Co., pfd.....	..	110 ..
Willis-Overland Co., com.....	77	78 230 260
Willis-Overland Co., pfd.....	88	92 113 114

*Par value \$10; all others par value \$100.

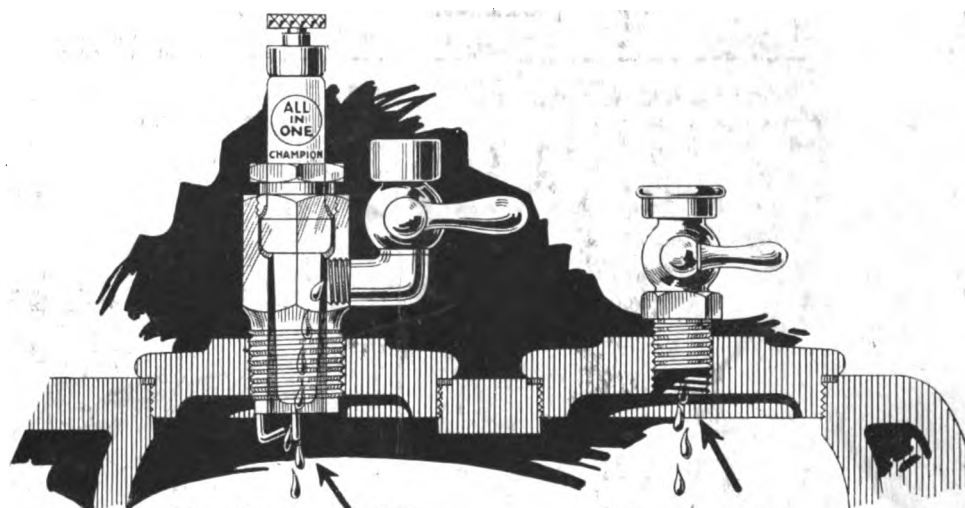
MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 11

New York, December 15, 1915

Ten cents a copy
Two dollars a year



Prime Here Not Here

"One drop of gasoline right at the spark is worth twenty drops anywhere else in your cylinders."

"In a really cold cylinder, gasoline simply will not vaporize rapidly enough for the gas to travel to the spark."

"So priming through the priming cup, or by taking the spark plugs out, is not effective."

"All-In-One Champion Priming Plugs have a priming cup right on the plug. The gasoline trickles right down the core and drips from the electrode—right where the spark jumps."

"A spark and gasoline at one and the same point at the same time means an explosion—that's all there is to it."

All-In-One



Champion Priming Plugs

"TOLEDO MADE FOR THE WHOLE WORLD'S TRADE"



All-in-One
Champion
\$1.25.
Simple, ef-
fective pet-
cock type
priming
plug.

This is the message we are bringing home to motorists all over the country in the Saturday Evening Post, Collier's Weekly, Literary Digest, Popular Mechanics and a long list of national farm and trade publications.

Consequently Champion dealers are reaping bigger profits than ever before.

The motoring public is demanding Champion Priming Plugs this winter. And they will not accept substitutes.

Most dealers already have ordered their full winter stock. They have placed themselves in a position to get the full benefit of our big sales and advertising campaign.

Line up with Champions. Get the spark plug profits in your territory—all of them.

See your jobber or write to us about the All-in-One Champion.

Champion Spark Plug Co., 1401 Upton Ave., Toledo, O.



Preparedness

Just as great nations prepare for the dangers that now and then threaten their peaceful existence—so the wise motorist rides prepared for the *unusual* as well as the *usual* conditions that beset his way.

MULTIBESTOS

is the unfailing recourse of the motorist when safety lies in a quick, certain stop. That is why it is used as original equipment by the majority of leading car-maker who will have nothing but the best brake lining and clutch facing in their cars. And because it is made with military precision—because it conforms to the most exacting scientific tests—Multibestos is the brake lining found in so many of the powerful war-trucks in service at the front.

Practically any Dealer, Garage or Repair Shop Owner will tell you Multibestos is proven superior in braking ability, durability and heat resistance—and *why*.

STANDARD WOVEN FABRIC CO.

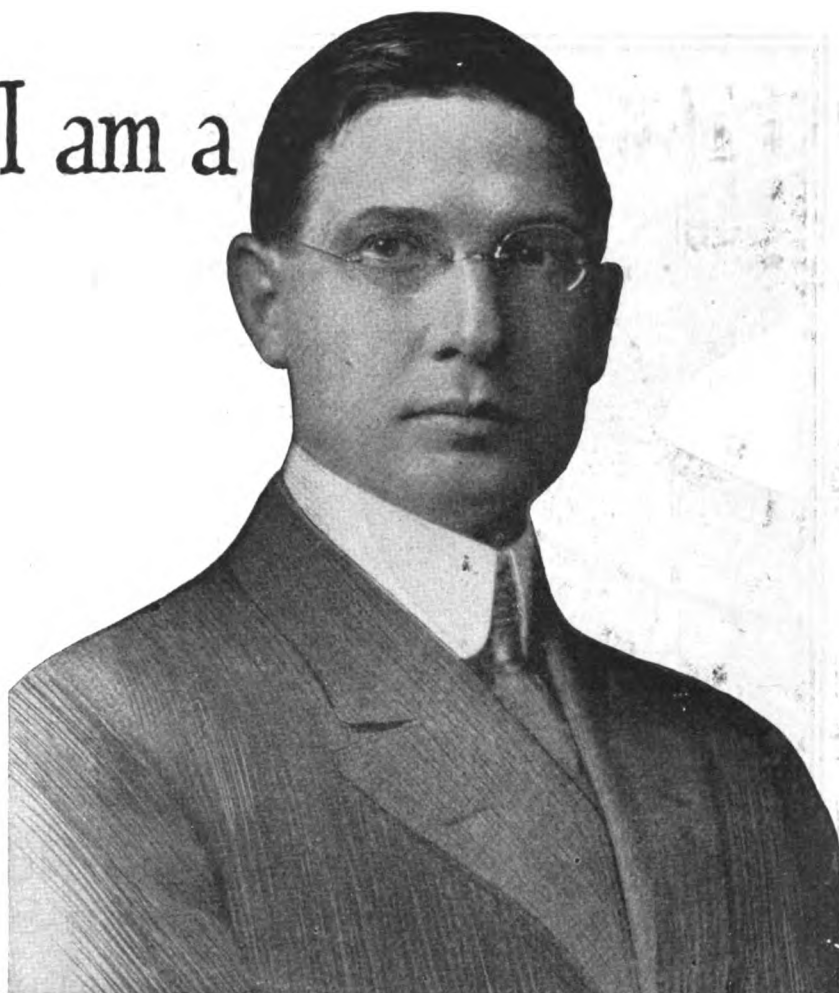
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THE GRIP OF
MULTIBESTOS


GEORGES
MOUSAPHIA

The reason I am a Studebaker Dealer



"On June 20, 1898 (over seventeen years ago) I was employed by Mr. J. M. Studebaker as a book-keeper. On February 1, 1914, I resigned as manager of the Studebaker San Francisco Branch to become a Studebaker dealer. During a period of over fifteen years as an employee of this Company, I became thoroughly acquainted with their methods, as well as their attitudes

towards customers, employees and the public generally.

Knowing, as I do, that they manufacture honestly, treat the public fairly, and treat their dealers and employees liberally, it is only natural for me to take a line which I believe to be the best on earth, and associate myself with a Company of high ideals."

Chester N. Weaver

Chester N. Weaver Co.
San Francisco, Cal.

Four Cylinder Models	
Touring Car, 7-passenger . .	\$ 885
Roadster, 3-passenger . . .	850
Landau-Roadster, 3-pass. . .	1185
Panel Delivery Car	875
Open Express Car	850
Station Wagon	875

STUDEBAKER

South Bend, Ind. Detroit, Mich. Walkerville, Ont.

Address all correspondence to Detroit

Six Cylinder Models	
Touring Car, 7-passenger . .	\$1050
Roadster, 3-passenger . . .	1000
Landau-Roadster, 3-pass. . .	1350
Coupe, 4-passenger	1550
Limousine, 7-passenger . .	2250
F. O. B. Detroit	

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NON-SKID TIRES

(Grey)



Make Permanent Friends By Selling Fisk Grey Non-Skid Tires

The Fisk Grey Non-Skid is famous for its mileage and its good looks. Thousands of new Fisk users are increasing the Fisk family every month. Car owners everywhere are adopting it. At the low prices the Fisk Grey Non-Skid costs even less than many makes of plain treads.

Sell your customer his first Fisk Grey Non-Skid and you have a steady customer and an enthusiastic supporter of everything which you sell. Our very wide-spread advertising has created the demand for you to supply.

All we have learned about tire building we are putting into the Fisk Grey Non-Skid. It is the best tire we have ever built, and we are doing everything in our power to help you sell it. That is our part.

Your part is to carry a comprehensive line of sizes in stock, so that you may reap the benefits of our work in your own continuous business and profits. Suggest to the car owner that he use Fisk Grey Non-Skids all around.

Don't let this opportunity get by you.
Write Dept. 23 for our Dealer Proposition

THE FISK RUBBER COMPANY

Factory and Home Office

Chicopee Falls, Mass.

Fisk Branches in All Principal Cities

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Z	
Zenith Carburetor Co., 3rd cover	

NEW DEPARTURE BALL BEARINGS

American Made for American Trade

Double Row—Single Row
Radax—Magneto

New Departure Double Row Ball Bearings can be used for replacing other bearings of equal width, bore and diameter.

New Departure Single Row and Radax Ball Bearings are made in the same bore, width and diameter as other standard makes, both foreign and domestic.

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every Garage Man
should carefully consider New Departures for all replacement work—Quality is another reason why.

While New Departures may now be had in practically all trade centers of the country, it will pay you to stock a few of the leading sizes for emergency calls.

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THE NEW DEPARTURE MANUFACTURING CO.

Bristol, Conn., U. S. A.

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What Big Production Can Do

The Overland Six price is solely the result of quantity production, wider manufacturing experience and unlimited factory facilities.

Our production capacity has reached 1,000 cars per day.

Consequently we are able to give the Overland Six far *greater value* than any other Six selling at a popular price.

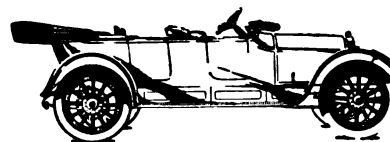
In addition—the savings of big production enabled us to reduce the price of the Overland Six \$330.

The car which today sells for \$1145 is essentially the same —*with improvements*—as last year's Six which sold for \$1475.

It is the ideal car for those who desire a big, powerful, high grade Six at a most moderate price.

The Willys-Overland Company
Toledo, Ohio

"Made in U. S. A."



Overland Model 86, Six Cylinder Touring Car
Price - - \$1145. f. o. b. Toledo

MOTOR WORLD

JOBBERs, DEALERs, AND GARAGEMEN

Vol. XLV

New York, U. S. A., Wednesday, December 15, 1915

No. 11

The Motor World Simplified System of Accounting

For Dealers and Garagemen—All in One Book, Under One Cover

(Copyrighted by the Motor World Publishing Co.)

Instalment No. 4

The New Year—and You

As the new year begins what is going to happen in your business?

Will it continue as it has or will you make changes for the better?

If you have been operating with a poor system or no system at all are you going to keep on staggering along in the rut, or are you going to get some system into things and see if you can't make a little more money than you made this year?

It's up to YOU—absolutely!

If you like the Motor World Simplified System of Accounting, get it! If you like some other system, get that! But, get SOME system!

Without system you are like a man trying to repair a watch under the back stairs in the dark. All he knows is that he has a watch.

He doesn't know what he is doing until the works fly out and he finds only the empty case in his hands.

After that the situation is hopeless. The man decides that as a watch repairer he is a failure, while the fact is that it is not the fault of the man but the fault of his system of operation.

The old year is ending. With it let your old ways die, too. Come out from under the back stairs.

Read these system stories. Get the spirit of Better Business. Reach out for Greater Profits. It CAN be done! YOU can do it!

INSTALMENTS Nos. 1, 2 and 3 took the reader through Form 1, the Income sheet, which is entitled Cash Receipts and Sales Record. They also explained the reasons for Debit and

This Week

How to Charge Expenses.

Entry A—Buying Stock.

Entry B—Buying Stock.

Entry C—Buying Equipment.

Entry Q—Paying Bills Payable.

Entry D—Paying Wages.

Entry E—Buying Supplies.

Entry F—Paying Electric Bills.

Entry G—Paying Insurance.

Entry H—Paying Water Bills.

Entry I—Paying Rent.

Entry J—Repairs to the Building.

Entry K—Paying for Advertising.

Next Week

Entry L—Charging Off Depreciation.

Entry M—Paying Interest.

Entry N—Miscellaneous Expenses.

Entry O—Charging Cost of Stock Sold.

Entry P—Reserve for Bad Debts.

Credit and how debiting and crediting is done.

We now come to Form 2, which is the expense sheet and is entitled Cash Paid and Expense Record. By looking at the

form you will at once learn that the expenses are divided up according to departments. These departments are:

General, Column No. 3.

Gasoline, Column No. 4.

Repair Department, Column No. 5.

Storage Department, Column No. 6.

Parts and Accessories, Column No. 7.

Car Sales, Column No. 8.

The General Department is the only one which did not appear on Form 1 under the Income Accounts. This department represents mostly the office and management of the business, and since it is an expense pure and simple, it is carried on the expense form only. The other headings were explained in detail in instalment No. 1.

How to Charge Expenses

Right here it is very proper to say something about the importance of dividing expenses properly. You should first determine some method for dividing your various expenses, such as rent, light and heat, and then follow that method each month. Suppose that in December you buy \$3 worth of waste for the Repair Department and charge it to SUPPLIES; suppose that in January you buy the same amount of waste and charge it to MISCELLANEOUS expense. Do you not see that, for sake of comparisons by month, your accounting would be useless, because the expense has been put into one account in

December and another account in January.

The same thing applies to wages. If one man puts 75 per cent of his time in the Repair Department and 25 per cent in the Storage Department, his wages should always be divided on this basis. You should not, for instance, in one month make the division 75 and 25 per cent, and another month make it 80 and 20 per cent, unless his duties have been definitely changed.

The DIVISION OF RENT also is important. On this form the entire rent has been charged against the Storage Department, and the light expense is charged to the General Department. It does not matter how you divide this so long as you do it on a basis which is fair to all departments. The important point is that unless some change occurs inside your business, you should ALWAYS FOLLOW THE SAME METHOD OF DIVISION.

There is a number of garagemen who measure up the square feet of floor in their various departments and divide the rent and some other expenses on that basis. If this is satisfactory it is proper to divide this way, but whatever way you choose, CONTINUE IT. A most common practice is to charge Rent to the General Department.

Buying Stock

(Entry A)

The gasoline tank is running low and we purchase a new supply, which, for the sake of simplicity in figuring, we say is 1,000 gal. at 10 cents, and costs us \$100. We buy it from the Standard Oil Co. As was explained in previous stories, whenever there is a business transaction we must make a double entry, one on the Debit side and the other on the Credit side. You will notice that on this form the Debit side extends from the left clear over to the column that is headed 11.

In paying for this gasoline, we are entitled to a discount of 2 per cent for cash, so we give the company a check for \$98. Now what is our Debit entry?

Debit, you remember, means TO RECEIVE BENEFIT, so we ask: What department of the business received this benefit?

The gasoline stock has been INCREASED, has it not? Therefore we must Debit the gasoline stock. To Debit, you remember, we merely go to the Debit side and find the gasoline stock column and make the entry there.

We do not find a gasoline stock column, but we do find one which is called STOCK ACCOUNTS, Column No. 1. This is for the entry of all purchases of goods which are put into stock to be resold, therefore we enter "\$100 gasoline." We have now made our Debit entry.

We must now make a Credit entry. Credit, you remember, means to GIVE BENEFIT, so we ask: What part of our business gave this benefit? Gasoline was paid for with money, so it was CASH which GAVE THE BENEFIT, so in the cash column, No. 10, on the Credit side, we enter the amount of cash paid, which is \$98. We now have an entry of \$100 on the Debit side and \$98 on the Credit side. This will not permit our books to balance; WE MUST ACCOUNT FOR THE \$2.

In this case, we ask, since it is to be a Credit entry, what part of our business GAVE THE BENEFIT of \$2? It was given to us by our practice of taking cash discounts, so the benefit came from CASH DISCOUNTS. There should not be much trouble in placing this entry on the forms because on the Credit side there are only two columns; one is for ALL CASH PAID and the

**DEBIT means to
RECEIVE BENEFIT
— CREDIT means to
GIVE BENEFIT**

other is for EVERYTHING ELSE. In this ALL OTHER ACCOUNTS column, we therefore make the Credit entry "\$2. Cash Discount." In the TO WHOM PAID column, No. 12, we enter the name of the Standard Oil Co., to which this payment was made.

Column No. 11 is for the number of the check with which you paid the bill if you happened to pay it by check. If you did not pay the bill by check, there would be no entry here.

Entry B (Buying Stock)

Let us take up the purchase of another item of stock, in order that the reader may thoroughly understand this part of the business. Let us assume that the garageman has run across a very desirable small horn which sells at wholesale for \$1.25. He decides to put ten of them in stock because he thinks he can readily dispose of this number. He places an order with the Dealers Auto Supply Co. and receives the horns. He pays \$12.25 for them by check and takes a 2 per cent discount amounting to 25 cents. The number of his check is 251. Now we must make two entries, a Debit entry and a Credit entry, so we ask, in making a Debit entry: What part of our business received this benefit?

The horns have been put into stock, and are carried as part of the merchandise which is to be sold by the PARTS

AND ACCESSORIES Department. When the sale is made the Accessories Department will give the benefit to the business, but thus far there is no benefit either to or from the Accessory Department. It is not affected at all.

It is well to get this distinction in mind. As long as merchandise is in stock it is not yielding a benefit from the department for which that stock is held. The benefit is RECEIVED by the stock itself and is DEBITED TO STOCK ACCOUNTS, therefore we go to the Debit side, find the STOCK ACCOUNTS column and enter "\$12.50 accessories, horns." This means that the horns are part of the accessories stock, which has RECEIVED THE BENEFIT.

We must now make a Credit entry, so we ask: What part of our business gave this benefit? The benefit came from our CASH, so in the cash column, No. 10, on the Credit side, we enter "\$12.25," which is the amount of cash paid. In the check number column we write "251," which is the number of the check.

We have now \$12.50 entered on the Debit side and \$12.25 on the Credit side. What shall we do with the 25 cents? This 25 cents is the Cash Discount that we secured by paying for the goods immediately. What part of our business gave us this benefit? As in the case of Entry A, it came from our practice of taking cash discounts, so we do the same as we did in Entry A and under ALL OTHER ACCOUNTS make a Credit entry "25 Cents, Cash Discount." In the TO WHOM PAID column, we put the name of the Dealers Auto Supply Co.

Buying Equipment (Entry C)

The garageman considers it advisable to purchase a lathe for the repairshop. The machine he wants costs \$700 and by an arrangement with the General Machine Co., from which he buys the lathe, he does not pay for it at once. The lathe is delivered to him, however, and he becomes indebted to the extent of \$700. We wish to make a Debit entry, so we ask: What part of our business received this benefit?

In order to make this entry we shall have to stop a moment and explain what is meant by an ASSET ACCOUNT.

To Define an ASSET: It is ANY PART OF A MAN'S PROPERTY IN BUSINESS THAT MAY BE APPLIED TO LIQUIDATING HIS DEBTS. It may be Cash, Accounts Receivable, Machinery, the Building or any other thing that might be turned bodily over to a creditor or might be turned into cash and used to pay the creditor. If it cannot be so used it is NOT an asset.

Let us first state that the dividing of

the business into departments is merely for the purpose of conducting the business and to analyze the business quickly. If the garageman were to sell out tomorrow, he would not sell out on a basis of departments; he would sell out the business as a whole; all the machinery, furniture and other articles would be classed as ASSETS, and he would forget that there were such things as departments of the business.

Therefore, everything in the place, such as machinery, etc., does not belong to the department in which it happens to be located; it belongs to the BUSINESS AS A WHOLE and is an ASSET.

Therefore, when we purchase new machinery, or other things of this kind, it is this ASSET ACCOUNT which RECEIVES THE BENEFIT. We have no column for asset accounts, so we enter it on the Debit side, under ALL OTHER ACCOUNTS.

We enter "\$700, Repairshop Equipment." We have now made our Debit entry.

What is our Credit entry? What part of our business gave this benefit? Since we did not pay for it, the benefit did not come from CASH; it must be some other account, and must go under ALL OTHER ACCOUNTS.

Since it is a debt which we owe, we might write down under ALL OTHER ACCOUNTS, "\$700, Debt," but we do not use this term. As was explained in our description of Form 1, all the money we owe is called Bills Payable, which is a general term used to cover one or more accounts to which we owe bills. We shall call it "Bills Payable—General Machine Co." Inasmuch as this account (Bills Payable—General Machine Co.) gave the benefit, we must CREDIT this account, which goes on the Credit side in Column 9 under ALL OTHER ACCOUNTS, as "\$700, Bills Payable, General Machine Co." It is true that we have not yet paid this money, but we have assumed the liability, and our liability is to this concern.

Here we want to emphasize the importance of knowing such liabilities as this at the end of the month or before the financial statement is taken off.

Our financial statement should show the income, expenses and assets, and would be far from complete if it did not also include our LIABILITIES. To many men, who are just entering business, an expense of the business occurs only when money is paid out, but such is NOT THE CASE. The expense is incurred when the purchase is made, and whether or not the bill be paid before the end of the month, the amount should be SHOWN AS A LIABILITY, and entered on the record as was Entry C. If it is a stock account that is unpaid, it should be Debited in Column 1 under STOCK ACCOUNTS. If it is an expense account for any one of the de-

partments of the business, it should be Debited to the proper department. And if it is an ASSET ACCOUNT, it should go under ALL OTHER ACCOUNTS. The Credit entry in all cases of UNPAID bills is entered under ALL OTHER ACCOUNTS as "Bills Payable."

When the bank balance is sufficient to meet the bill, or when the garageman gets ready to pay it, the bill is paid. While we are on the subject it is well to take up the payment of one of our BILLS PAYABLE, and for this purpose let us refer to

Paying Bills Payable (Entry Q)

Let us assume that the garageman owes \$100 to the Garage Equipment Co. On some preceeding day of the month he entered this on Form 2 in the same

The System Will Cost \$12 and Will Include

- 1 Sectional-post binder, bound in full, genuine gray army duck with heavy leather corners.
- 1 No. 26 division leather-tabbed alphabetical index.
- 3 additional special leather-tabbed division leaves.
- 100 of Form 1.
- 100 of Form 2.
- 200 of Form 3.

Extra Sheets

Form 1.....	\$1.75 per 100
Form 2.....	1.75 per 100
Form 3.....	1.75 per 100

way that we have just made Entry C. He now sends a check for \$100 to the Garage Equipment Co. In making our Debit entry, we ask ourselves: What part of the business received this benefit? The amount of DEBT that we owe has been made LESS by this payment, and this is a DISTINCT BENEFIT. It was our Bills Payable account which received the benefit. Also on the Debit side there is no column for Bills Payable, so it must go under ALL OTHER ACCOUNTS.

Therefore, our Debit entry is under ALL OTHER ACCOUNTS, Column 9, and is "\$100, Bills Payable."

We must now make a Credit entry. Since we secured this benefit to our Bills Payable Account by paying out CASH, it was our CASH Account which gave the benefit; therefore, our Credit entry goes in the Cash column, No. 10. The number of the check goes in the check number column, No. 11. In the TO WHOM PAID column we put the name of the Garage Equipment Co.

Later we shall explain how Bills Payable may be carried in the back of the book on sheets similar to Form 3. They are merely filed alphabetically much the same as are CUSTOMERS ACCOUNTS on Form 3.

Paying Wages (Entry D)

Let us assume that this garage operates a very good repair department and does a large storage business. Some of the men put in all their time in the Repair Department; several men are kept busy all the time in the storage department; one man spends all his time in the Parts and Accessories Department as salesman and stock clerk.

During the day, and also during the night, it takes about half of one man's time to sell gasoline. This does not necessarily mean that it is always the same man. In the office are stenographers and the owner of the business, who pays himself a salary as manager of the garage. Some managers charge all of their time to the General and Overhead Department, while others, if they are more or less active in supervising the garage or shop, charge part of their salaries to those departments.

In this case the garageman figures out what he considers a fair division of wages, and charges certain amounts to the different departments, as shown by Entry D on this form.

In making the Debit entry, it is plain that the benefit is received by the various departments and is an expense of these departments, so Debit entries are made as shown.

In making the Credit entry, we ask: What part of our business GAVE THIS BENEFIT? And since it is CASH that was paid, it was Cash that GAVE THE BENEFIT.

If the money was taken out of the cash drawer it would simply be entered in a lump sum in the CASH column, No. 10, on the Credit side. But in this case the garageman did not have that much money handy, so he drew check No. 252 and sent his office girl to the bank after the money, which amounted to \$380.50. This, then, is our Credit entry: "Check No. 252, \$380.50."

Under TO WHOM PAID, we write "Payroll," as an explanation of where the money went.

Buying Supplies (Entry E)

Certain supplies are necessary for the different departments. In the office we need stationery, stamps, pencils and pens. In the Gasoline Department we may require sales slips. In the Repair Department we may have to purchase waste. In the Storage Department there is always a need for soap, chamois, waste and other materials. In making this Debit

The garageman, despite this statement, might still be inclined to make all these little entries every day. So far as that is concerned, there is a daily expense for rent, light, heat, power, and many other things, but it is a waste of time to try to make daily entries in those cases, so we make them but once a month; however, if the garageman wishes to make an entry and charge it to BILLS PAYABLE every time he buys a lead pencil there is nothing absolutely wrong in it, but he is wasting time that can be better applied elsewhere.

Paying Electric Bills **(Entry F)**

Also, this garageman classes RENT,

**DEBIT means to
RECEIVE BENEFIT
—CREDIT means to
GIVE BENEFIT**

Now, do not be confused by the fact that in making the Debit entry to the General Department it says rent, and that the payment is to the City Electric Co. The rent of the whole building is charged to the Storage Department, as will be explained in Entry I, and the "rent, heat and light" under the General Department in Entry F merely means

that we classify these items as one account and use the full names when we refer to them.

Paying Insurance **(Entry G)**

Now, if the garageman so desired, he could pay one-twelfth of the year's insurance every month, but this would necessitate considerable bookkeeping and the result gained would not be great. The principal reason for dividing any annual expense into monthly instalments is to give a more accurate record of what it costs the business to run every month, and, if this insurance were a very large sum, it should be so divided; but since it is only \$7.50 and the expense to any department for the year is not greater than \$3, it is better to make the one entry and close the transaction. Were it divided into twelve parts, it nevertheless would have to be paid by check during the first month of the year, and the assessing of this expense upon the various departments would have to be carried on the books as a DEFERRED CHARGE. This matter of DEFERRED CHARGES will be taken up in a later instalment, because in some cases it really is necessary that they be made.

Paying Water Bills **(Entry H)**

Probably 99 per cent or more of the water that is used in a month is used in washing cars, so the garageman de-

How Did YOU Answer the Questions Last Week at

Supplement to **MOTOR**

③ ③ ④ ① ③ ⑤ ② ⑥ ⑦

DATE Jan 31st 1915

CASH RECEIPTS AND SALES RECORD

D E B I T S

MOTOR WORLD SIMPLIFIED SYSTEM
Copyrighted

ALL OTHER ACCOUNTS

CUSTOMERS ACCOUNTS

ALL
CASH
REC'D

FROM WHOM RECEIVED

AM'T. AM'T.

EXPLANATION

CHARGE
AM'T.

NAME

#1005

#1006

#1007

#1008

#1009

4.00

American Express (W.P. Smith)

49.00

G. T. Bundy

1000.00

W. G. Sharpe

30.00

Gen'l Supply Co.

24.00

C. J. Schenk

1.00

Gen'l. Expense - Discount Allowed

20.00

Bill Payable - Gen'l Supply

1.00

Storage Exp - Allowance

termines that the Storage Department must pay the entire water bill, which amounts to \$30. He gives check No. 256 for \$30, to the water tax collector. It was the Storage Department which RECEIVED the benefit, so we make our Debit entry in the Storage Department's expense column, and since our CASH gave the benefit, we make our Credit entry in the CASH column. And under TO WHOM PAID write "water tax collector."

Paying Rent (Entry I)

The Land Realty Co. owns the building in which this garageman does business, and the rent is \$200 a month. The garageman sends check No. 257 for \$200 to this company. As we explained some time ago, the garageman charges all of the rent to the Storage Department, so our Debit entry must be made in the Storage Department's column, No. 6.

In explaining this Debit entry of \$200, we write "rent, heat and light." This is the name of the account under which rent, heat and light are carried, and that is why we use that three-named combination in connection with the \$200. There was no other entry in the ALL OTHER ACCOUNTS column, No. 9, on the Debit side, so the garageman here made a note that the payment was for RENT.

Since it is our CASH which GAVE us this benefit, we Credit Cash with this amount, and under TO WHOM PAID enter "Land Realty Co."

Repairs to the Building (Entry J)

During the month it has been necessary to make repairs to some of the equipment in the Repairshop and to the lockers in the Storage Department. The Repairshop repairs cost us \$7.25 and the repairs to the lockers \$3. A man named John Smith did this work and we paid

him \$10.25 with check No. 258. We Debit the Repair Department with its share of the expense and the Storage Department with the other part of the expense. We Credit CASH with \$10.25 and under TO WHOM PAID put Smith's name.

Paying for Advertising (Entry K)

Every month the garageman gets out some hand bills and circular letters to send to his customers and prospective customers. According to the benefit that various departments of the business should receive, he divides this advertising cost on what he considers a fair basis, and makes his Debit entries accordingly. In this case he assumes that the Gasoline Department got one-third of the benefit, the Repair Department one-third, the Storage Department one-sixth, and the Parts and Accessories Department one-sixth.

The benefit CAME from CASH, so we Credit CASH with \$6 and under TO WHOM PAID enter the name of the Alton Printing Co., which did the work.

This takes us through most of the routine items of EXPENSE in a garage business. If there is a single point upon this form which you do not understand, we urge you to ask any questions you desire of Motor World's System Editor.

The next instalment will conclude this form. While it takes up a comparatively small number of entries, it nevertheless is one of the most important instalments, because it goes into DEPRECIATION, which is a subject OFTEN IMPROPERLY HANDLED, if HANDLED AT ALL; goes into the payment of INTEREST; the classification of MISCELLANEOUS ACCOUNTS, and determining monthly the COST OF GOODS THAT ARE SOLD. It also takes up BAD DEBTS; and the setting up of RESERVES to meet emergencies of this kind. It is possible some garagemen will be able to operate the system with

the instructions that are thus far given, and Motor World has even now begun shipping systems to those who wish them. Some of our readers are anxious to get started by January 1. The stories thus far have shown how to make daily entries of the more common EXPENSES—and all the INCOMES—and the instruction will at least give the garageman a start if he wishes to begin now. But whatever you do, let Motor World help you on any detail you do not THOROUGHLY UNDERSTAND.

Try These Questions. The Answers Will Appear Next Week

QUESTION No. 1,010

The B—— garage has a payroll of \$500 a week, which is made up of \$100, Repairs; \$100, Storage; \$50, Parts and Accessories; \$50, Gasoline; \$200, salary of proprietor, superintendent and stenographer. The salary of the superintendent and the proprietor and stenographer are considered overhead, or general expense. Make the entry on Form 2, showing payment of this week's wages.

QUESTION No. 1,011

The business is indebted under Accounts Payable to Smith, Jones & Co. for \$50 for a gasoline tank. Smith, Jones & Co. stores its truck at our garage. Make entry on Form 2, showing the payment of the \$50 account for the tank less \$25, which is the monthly charge for storing the truck.

QUESTION No. 1,012

Gasoline goes up and the garageman in an effort to get business runs an ad for his gasoline department. It costs \$10. Enter this payment on Form 2.

QUESTION No. 1,013

The business purchases \$400 worth of tires from the B. B. Tire Co., which allows 5 per cent cash discount in 10 days. The tires are placed in stock for sale and paid for on the tenth day after purchase. Enter payment of this invoice on Form 2.

QUESTION No. 1,014

James Smith, who stores his car at our garage, broke down 15 miles out in the country. He engaged a man to take the car to our garage. Smith is a thoroughly reliable customer and the man showed an order from Smith on us to pay him \$5 for the work. We pay him. Show the entry on Form 2, paying \$5 to this man, whose name is Will Casey.

the Close of Instalment 3? Here Are the Answers

MOTOR WORLD issue November 24, 1915

MOTOR WORLD SIMPLIFIED SYSTEM Copyrighted												DATE <i>Jan 31st 1915</i>	
CASH RECEIPTS AND SALES RECORD													
C R E D I T S													
INCOME ACCOUNTS													
GAS OIL GREASE	SALES	REPAIRS	PARTS ACCESS.	STORAGE	CAR SALES	EXPLANATION		MISC'L.	ALL OTHER ACCOUNTS AM'T.	EXPLANATION		CUSTOMERS ACCOUNTS NAME	CR. AM'T.
#1005			4.00	88		C.O.P. - Spark Plugs							
#1006						Paying Acct.						G. T. Bundy	50.00
#1007						Unsold Stock Sale		100.00		Cap Stock outstanding		Gen'l Supply Co.	50.00
#1008						Paying Acct.						C. J. Schenck	25.00
#1009						Paying Acct.							

Questions About the System

W. I. VAN DUSEN
Catskill, N. Y.

Question—Is this simple enough for a man with an average education to operate?

Answer—Yes.

Question—How do you get the amount of your customer's account at the end of the month?

Answer—These are carried on Form 3; all purchases of customers are entered on these forms and kept under the alphabetical index that was illustrated on page 5 of Motor World December 24.

Question—I am using an autographic register with a slip for each customer; can I continue to use this?

Answer—Yes, certainly.

Question—In starting your system, would you not have to take inventory of everything you have in stock?

Answer—It would be advisable to do this and start with a knowledge of your stock on hand.

Question—What do you do with customers' accounts in your old books? Transfer them to their proper place in the new system or get them settled up before installing the new system?

Answer—The customers' accounts would be transferred to the customers' account sheets, Form 3, regardless of their age. The total would be carried in your financial statement as Accounts Receivable. The fact that you are installing a new system might induce some of your customers to settle some of these back accounts. Read Instalments 4 and 5 very carefully.

THE GAU GARAGE
Pierz, Minn.

Question—How will I be able to have each person's account separate and ready for settlement?

Answer—These individual accounts will be carried on Form 3, a page to each customer.

Question—Must I use a new leaf in the book every day?

Answer—Not necessarily. If your day ends in the middle of the page, simply indicate in some way you are beginning a new day and go right ahead.

Question—How can I use the system in case I want to balance up every week?

Answer—If you wish to balance your books every week, you may go back for seven days and add all Form 1 accounts for the seven days, or you may make a total for the day as was done in Entry X on Form 1, and bring forward the total for the preceeding days as was done in Entry Y on Form 1. Entry Z on Form 1 will then always represent your total to date whether it be for two days, seven days or thirty days. It is

far from practicable and is not advisable to attempt to balance the Expense Record, Form 2, every week. So many of your bills are monthly that you gain nothing and make yourself a lot of work by trying to spread expenses into weekly balances.

Question—What about the stock and accounts on hand when I start using your system?

Answer—It is well to take an inventory of your stock before beginning. The individual accounts of your customers you would transfer to Form 3, which carries customers' accounts and goes in the alphabetical index in the back of the book. The total of your Accounts Receivable and your stock inventory would be a part of your financial statement.

WICHITA BUICK SALES AGENCY
Wichita Falls, Tex.

Question—Please advise under what heading you would make the record for express paid on parts, telephone calls and vulcanizing.

Answer—Express would be Debited to Customers Accounts on Form 1 when the shipment was made, provided the customer is to be charged with the express. The Credit entry would be under All Other Accounts, "Parts and Accessories, Express." If we are paying the express it would be entered on Form 2 as a Debit under Parts and Accessories, thereby being charged to the expense of that department. The Credit entry would be under Cash if cash were paid, or under All Other Accounts, Bills Payable, if charged.

Question—On Form 2 under Entry O, you have "\$295, cost of accessories sold." What do you mean by that and where do you arrive at the amount which you place there? Also explain under this same Entry O why you have a journal entry in the check number column, and explain what you mean by that?

Answer—The method of arriving at the cost of goods sold will be explained next week, as will our journal entry. Briefly stated, we find, for instance, how many horns were sold during the month and multiply that by the cost per horn and do the same with other items. Since we have credited the Accessories Department on Form 1 with earning a certain amount of money, we cannot determine the profit unless we charge against this earning the price of goods sold on our expense sheet, which is Form 2. The same applies to gasoline and all other goods sold. The Journal Entry is so-called to distinguish it from one in which cash is paid out. In this case money was not paid out, but the entry is necessary in order to determine our profits.

Question—About what per cent do you figure depreciation on different departments per month?

Answer—This matter will be gone into more thoroughly later. To illustrate briefly, if you buy a lathe and figure that it will last ten years, you charge off one-tenth of the cost of the lathe each year. In the garage we are describing on these forms, 10 per cent is charged off each year on equipment, and each month we charge off one-twelfth of this 10 per cent.

Question—On Form 1 you have on the Debit side three columns marked "3." When should you use the first two?

Answer—This was explained in Instalment 2 in Motor World December 1, under Entries F and I.

ROCKLAND GARAGE CO.
Rockland, Me.

Question—After Entry B has been made on Form 1, charging James Smith with spark plugs and labor, what is done with the account that it may be readily referred to at end of month for rendering bill or for adding future charges to his account?

Answer—The charge to James Smith would be entered on Form 3, which is for the accounts of customers. These are filed in the back of the book under the letters of the alphabet that appear on the extreme right hand side of Page 5 in Motor World of November 24. Other charges against Smith would be placed on this same sheet, and his bill would be made up from this at the end of the month. On Form 3, which will be shown later, are Debit and Credit columns and a column in which the balance due from the customer is shown at all times.

Question—When buying for credit where are we to post these items?

Answer—If quite a number of Accounts Payable are carried, they can be kept in the back of the book, following Form 3, and may or may not have a separate alphabetical index. It all depends on how many of them there are.

W. M. TRIMBLE
Mesa, Ariz.

Question—We are doing from \$75,000 to \$90,000 business yearly. We sell cars, gasoline and oil, accessories and tires, Ford parts, and do repair work. Would your system be satisfactory for us? We want the business kept track of under the above five heads, and will need sales slips for each. Can you supply us with the necessary book and sales slips?

Answer—We cannot say Yes or No as to whether this system will fit your business unless we are better acquainted with your business. We believe, however, it will work. You should by all

means have a good system of SOME kind. This system will fit your business with the exception that you have one department for accessories and tires and another for Ford parts. Since the salaries and other expenses connected with the sales in these departments probably overlap, we suggest that you carry them as one department. At the end of the month by running down through the column you can quickly and easily separate the sales in this department into as many divisions as you desire. It is well to explain in this case that if you have a department which is not shown on the form, and if there is on the form a department you do not use, you can write in the name of any department you desire. It will not affect the operation of the system. Neither would it affect the operation of the system if you were to rule the form for a separate department in the blank space in the center. It would merely add one more department to the business and it is not well to have too many.

KENDRICK AUTO CO.

Kendrick, Ida.

Question—Is there a provision made for bank deposits and your cash in bank at all times?

Answer—No column has been set aside for this. There are two ways it can be done. The memo can be made on a separate slip of paper, which may be called a Cashier's Report, or the figures may be set down on Form 1 in the blank spaces at the center, next to the holes for the binder posts. It is not an entry that requires much space. If the Cash Receipts for today are added to yesterday's bank balance, and if the cash paid out today, as entered on Form 2, Column 10, is subtracted from this, it will be the amount of cash on hand.

BARTLETT BROS.

Chicago

Editor Motor World:

Your simplified system of accounting hits the nail on the head. It is the most practical system for a garage I have ever seen. It seems to me, however, one improvement might be made by including in the back a second index, A to Z, for accounts payable, covering purchasing made on a credit basis. The posting, we think, could be made on Form 2 in Column 9, with a separate ruling for charge accounts. A daily total could be carried in red ink, not to be included in the general debit and credit figures, as they would fall into these when paid.

The usefulness of this will be in showing a man what money he owes at the end of the month; also serving as a check against his statements when rendered.

If you will kindly reply, stating from whom the forms are obtainable and when a supply will be available, or, if the

forms may be reproduced by us, we shall esteem it a favor.

Yours respectfully,

Bartlett Bros.,

Thos. A. Bartlett, Prop.
2135-7-9 Lincoln Ave., Chicago.

(1) Mr. Bartlett's suggestion re a separate set of indexed sheets for carrying the individual ACCOUNTS PAYABLE is a timely one, and how this can be accomplished will be explained later on in the series. In a like manner, if he should want to show the various accounts, like Assets and Liabilities, etc., in ledger form, all he has to do is to insert ledger leaves after the EXPENSE accounts and post the totals from Forms 1 and 2 to these leaves once a month, thereby enabling him to see a year's business in each account on one page.

(2) His suggestion that a daily total could be carried in red ink and the figures not be carried in the totals of the DEBIT and CREDITS is wrong. At the end of the month or any period in which he starts to show a true statement of the business, the amount that the business owes, as ACCOUNTS PAYABLE, should be shown on the statement.

In Entry C on Form 2 we show the purchase of a machine for the Repair Department, and the CREDIT side of this entry is ACCOUNTS PAYABLE, or Bills Payable, as this machine was bought on credit. Further down the form we show in Entry Q the payment of \$100 on this account. Here we see BILLS PAYABLE DEBITED, which DEBIT reduces the CREDIT in Entry C by \$100, leaving a balance of \$600 in Bills Payable, which is the amount that is still due on the machine. If the business had a number of such accounts they could be carried on individual sheets in the back, but the total of the balances of these accounts should equal the amount as shown by the difference between the DEBITS and CREDITS to Bills Payable on Forms 1 and 2.

The complete outfit, at \$12. can be delivered now; extra sheets are \$1.75 per 100.

Comments

We are very much interested in the Simplified System of Accounting. We are moving into larger quarters, where we will do business on a larger scale, and incidentally our expenses will be increased. Naturally, we are interested in anything that will cut down expenses.—Frank H. Cole Motor Co., Bloomington, Ill.

We are greatly interested in your Simplified System of Garage Accounting.—Ralph H. Lincoln & Co., Studebaker dealer, Fall River, Mass.

Kindly send me price of book needed.—Eastern Motor Co., Atlantic City, N. J.

I am very much interested in the system. We are figuring on changing our

system of accounting.—Providence Motor Car Co., Providence, R. I.

It is a good system and we are interested in it.—Gaarden-Kriesel Motor Co., Ellsworth, Wis.

Will you kindly let us know where we can purchase a book suitable for the new Simplified System of Accounting?—The "Cannon Ball" Garage, Earlville, Ill.

I have read with much interest your first instalment on the simplified system of accounting and am very anxious to learn more about it. It will be impossible for me to wait until all the instalments have been published as I must start my new books on the first of the year.

I would be pleased to hear from you by return mail the full particulars regarding same, stating price and, if possible, giving me the other four instalments.

Kindly hurry this, as it is a long distance between California and New York and the time is very short before January 1.—Nevada City Garage, Nevada City, Cal.

We are very much interested in your article and supplement on the Simplified System of Accounting. We would like to have you advise us where the forms can be had and price; also we would appreciate very much if you would furnish us with any information you might have relative to the use of the accounts.—Pullman Motor Car Co., Cincinnati, O.

I have read the second instalment of "Accounting" and must say that I think it will be just the thing for my business. Have been looking for just such a system and I hope the following numbers of Motor World will continue to be as interesting as the previous ones. I want to put in an order for a set complete so I will be able to start the first of January.—W. I. Van Dusen, Van's Garage, Athens, N. Y.

We are contemplating using the Motor World's System of Accounting for our business, and wish to know if you will have the loose-leaf binder and proper blanks for sale. If so, we would like to have you send us a set as soon as possible.—Valentine Auto Co., Valentine, Tex.

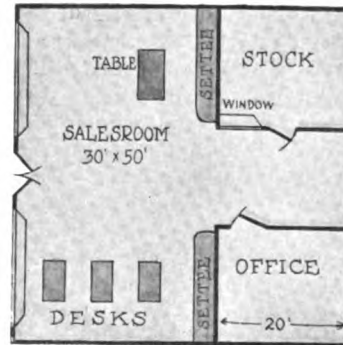
This seems to be what we are looking for and something that would answer the purpose as far as we can see in the handling of a general garage business with the different departments. Kindly enter our order for one complete set of forms with binder for installing this system.—A. M. Zimbrich, Rochester, N. Y.

Please advise if you are in position to quote us prices on binder and leaves and also if you will furnish the extra leaves such as the sample sent in the last journal.—Shelby Automobile Co., Bristol, Tenn.



Schenuit Bros., Baltimore, sells Pennsylvania tires, and it is not letting any of its customers forget the service these tires have given nine owners. Nine tires were photographed as shown and reproduced on a card, which was sent to 10,000 owners. The expense was \$3.25 for the half-tone and \$2.50 per thousand for mailing—\$28.75. Business is 92 per cent better this year than last and a good part of it is attributed to the cards

Here and There in Garage and Dealer Field



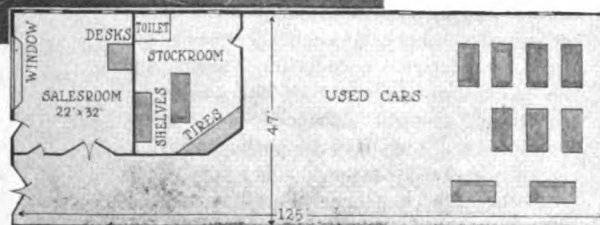
The Editor will be glad to receive pictures such as these from subscribers. When you send in pictures or sketches, please try to give us the same kind of information as appears with these. Give us good, sharp pictures and watch for them to appear



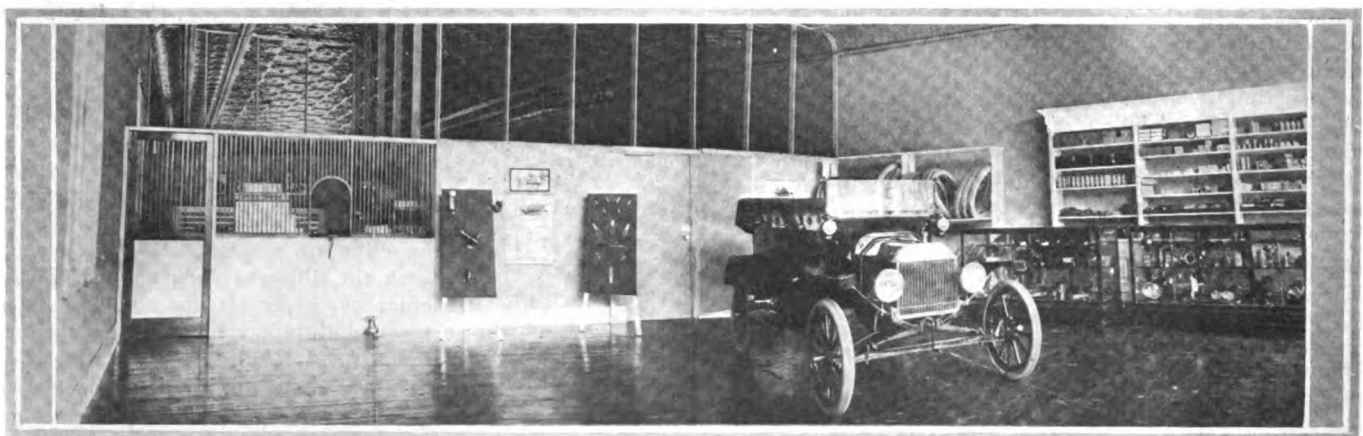
This is the attractive showroom of the Ohio Sales Co., Columbus, O., Dodge distributor. The salesroom proper is about 50 ft. square, and back of it is the garage and service station and upstairs the used car department. In one corner of the showroom is an office about 20 ft. square and in the other is the stock room



This is the appearance of the salesroom built into a corner of the garage of the Trenton, N. J., branch of the Packard Motor Car Co. of Philadelphia after alterations were completed



See caption opposite. A corner of the garage was partitioned off with scantling; Beaver Board was nailed on, trimmed and painted; a new lighting system was installed; the concrete floor was painted. The plan shows the new arrangement with the new office and stock room



"My reason for having only one car on display," says M. H. Carroll, Jr., of the Carroll Auto Co., Marlin, Tex., "is that I wanted a neat and attractive salesroom without too great expense." From 1 to 15 cars are kept behind the partition. This year the Carroll company occupied this new place and has an attractive accessory display. "My accessory and tire business, with proper display, has more than tripled since Jan. 1," says Carroll

Winton to Concentrate on Two New 6's in 1916

With Seven-passenger Bodies They Will
List at \$3,500 and \$2,285—Nine
Bodies Are Listed as
Standard

CLEVELAND, Dec. 13—For 1916 the Winton Co. will concentrate its energies on two new models, both sixes. The larger is $4\frac{1}{2}$ x $5\frac{1}{2}$ in., the smaller $3\frac{3}{4}$ x $5\frac{1}{4}$, both being similar in design. With seven-passenger touring bodies the respective prices are \$3,500 and \$2,285.

There are nine bodies listed as standard equipment for each chassis, including practically all types, and the chassis are also obtainable without bodies at \$3,000 for the larger and \$2,000 for the smaller, and special inclusive prices are quoted for one chassis supplied with two bodies of different type.

The outside of the motor has been cleaned up a great deal, though retaining the lines of former Winton engines; pair casting is adhered to. The electrical accessories are disposed very accessibly, the water pump being central on the right side with the magneto behind and Bijur generator in front. On the left side is the Bijur starting motor and the carbureter, which latter has a long intake manifold that is led over the top of the cylinders to a distributing pipe on the valve side of the motor.

Springs are three-quarter elliptic at the rear, and take the driving stress, a feature being that both front and rear springs are supplied with the Dann insert, which maintains lubrication between the leaves.

In the bodies the designers have successfully aimed at modernity without adopting ultra-streamline forms. Hoods, cowls and body lines merge, but there is no attempt to make the section of the same shape throughout.

The tires are 36 x $4\frac{1}{2}$ on the smaller chassis and 37 x 5 on the larger, and the power tire pump is mounted on the side of the gearbox.

Chase Elects Officers

SYRACUSE, N. Y., Dec. 14—The Chase Motor Truck Co. has elected the following officers for the ensuing year: Chairman board of directors and president, A. M. Chase; vice-president, H. P. Bellinger; secretary and treasurer, E. A. Kingsbury; general sales manager, H. T. Boulden; chief engineer, J. E. Gramlich. The company will, on February 15, celebrate its tenth anniversary in the motor truck field.

Fisk Buys Federal Rubber

CHICOPEE FALLS, MASS., Dec. 14—The interests of The Fisk Rubber Company of Chicopee Falls, Mass., have purchased control of the Federal Rubber Mfg. Co., Cudahy, Wis., and will direct the policies of that company. Byron C. Douse, president of the Federal company, has disposed of his holdings and resigned as president and general manager. At the stockholders meeting the following directors were elected: H. T. Dunn, J. A. Kepperly, Toledo; B. H. Pratt, H. A. Githens, R. C. Ward, Milwaukee; H. G. Fisk, E. H. Broadwell, G. A. Ludington, E. N. Bogardus, Springfield, Mass.

From this board the following officers were chosen: President, H. T. Dunn; vice-president and general manager, B. H. Pratt; assistant general manager, H. A. Githens; treasurer, H. G. Fisk; secretary and assistant treasurer, R. C. Ward; comptroller, E. M. Bogardus.

The Federal plant is located at Cudahy, Wis., a suburb of Milwaukee, and comprises 5 acres of floor space. The two organizations, both manufacturing and selling, will be entirely separate and the Federal organization will extend its efforts in building up and developing the jobbing and mechanical rubber goods lines.

Continental to Continue in New Stegeman Trucks

New Worm-driven Models Use Same
Power Plant as Chain-driven
Types— $4\frac{1}{2}$ -ton Truck Em-
ploys Six Motor

MILWAUKEE, Nov. 15—The new line of worm-driven trucks produced by the Stegeman Motor Car Co. have the same style of Continental motors as was used formerly in the chain-drive vehicles brought out by that concern. In the $1\frac{1}{2}$ -ton and $2\frac{1}{2}$ -ton trucks, a four-cylinder $4\frac{1}{8}$ x $5\frac{1}{4}$ motor is used, while the $4\frac{1}{2}$ -ton machine is equipped with a six-cylinder $3\frac{3}{4}$ x $5\frac{1}{4}$ motor.

Three-point suspension is employed and the motors all are equipped with sealed governors, limiting the speed to 1,100 r. p. m. The car speed of the $1\frac{1}{2}$ -ton is 18 m. p. h., the $2\frac{1}{2}$ -ton, 15 m. p. h., and the $3\frac{1}{2}$ -ton, 12 m. p. h. Lubrication is by a combination of the splash system and double plunger pump. Cooling is by centrifugal pump, gear driven, in connection with a large radiator. A Stromberg carbureter is used, having a hot-air connection.

The three-speed gearset is built in unit with the motor. The clutch is a multiple disk, dry plate. An Eisemann high-tension magneto, with automatic spark advance, is used on all models. The steering gear is a Ross irreversible, worm and nut type. All three models have left drive and center control.

The frame is pressed steel, channel section. In the $3\frac{1}{2}$ -ton vehicle the frame is reinforced by nickel-steel truss rods. The standard wheelbase of the $1\frac{1}{2}$ -ton is 150 in., of the $2\frac{1}{2}$ -ton, 144 in., but this model may be equipped with a special long wheelbase, which measures 162 in. The wheelbase of the $3\frac{1}{2}$ -ton is 156 in.

Timken front axles are employed. Timken-David Brown, worm-gear floating axles are employed in the rear, the driving reduction on the $1\frac{1}{2}$ -ton truck being $7\frac{3}{4}$ to 1, on the $2\frac{1}{2}$ -ton, $9\frac{1}{4}$ to 1, and on the $3\frac{1}{2}$ -ton, 10.3 to 1.

Semi-elliptic springs are used on all three models. The front springs of the $1\frac{1}{2}$ -ton are 48 x $2\frac{1}{4}$, the rear, 54 x $2\frac{1}{4}$; the $2\frac{1}{2}$ -ton, 42 x $2\frac{1}{2}$ front and 60 x $2\frac{1}{2}$ rear; $3\frac{1}{2}$ -ton, 46 x 3 front and 60 x 3 rear.

The standard tire equipment on the $1\frac{1}{2}$ -ton machine is 34 x $3\frac{1}{2}$ solid front and 36 x 5 solid rear. On the $2\frac{1}{2}$ -ton, 34 x 4 solid front and 36 x 4 dual solid rear. The $3\frac{1}{2}$ -ton truck is equipped with 36 x 4 solid tires front and 40 x 5 dual solid rear. The standard tread of the $1\frac{1}{2}$ -ton is $56\frac{1}{2}$ in.; the $2\frac{1}{2}$ -ton, 58 in., and the $3\frac{1}{2}$ -ton, 65 in. However, a special country road $2\frac{1}{2}$ -ton model is offered with a tread of $56\frac{1}{2}$ in.

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Westcott Adds 2 New 6's

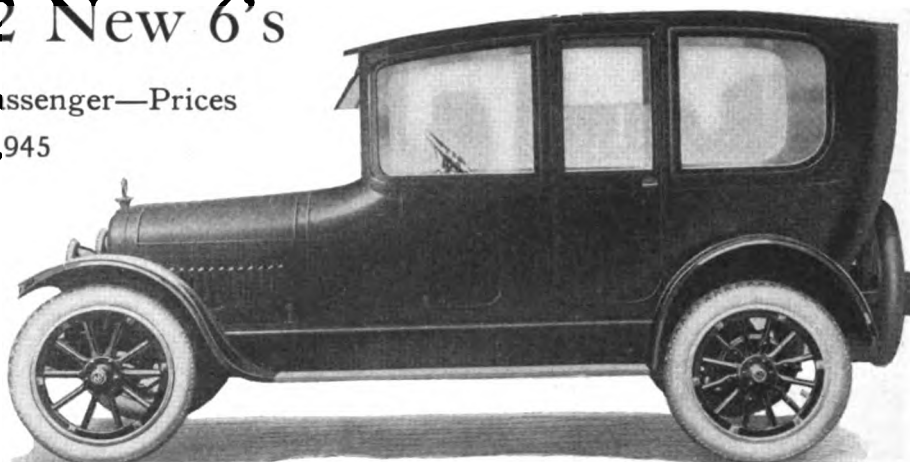
Range from Roadster to 7-passenger—Prices
Are \$1,445 to \$1,945

THE two new Westcott cars, made by the Westcott Motor Car Co., Richmond, Ind., are both sixes, one a little larger than the other, being intended for seven-passenger bodywork. In design the two are similar, the same motor, a Continental, $3\frac{1}{2} \times 5\frac{3}{4}$ in., being used for both.

The respective wheelbases are 121 and 126 in., and the longer chassis has larger tires. Prices are \$1,945 for the seven-passenger sedan, with an alternative choice of open touring or three-passenger roadster bodies, which list at \$1,595.

The short chassis has similar open bodies at \$1,445, but with a maximum of five-passenger capacity, and also a cabriolet for \$1,746.

The sedan car is convertible to an open touring type. When the two portions are joined together, the upper structure has no overhang where it meets the sides of the lower part, and one of the greatest difficulties with demountable top bodies, that of making a good join



The new Westcott 7-passenger, Six-51 sedan, \$1,945, which will make its debut at the New York show

around the windshield, is overcome by supplying a special shield for the enclosed car and utilizing it as one of the main attachments. Two bolts suffice to make the attachment, the shield detaching from the brackets that hold it in place. The interior of the demountable top is finished in accordance with proper limousine style with good grade cloth and silk curtains.

On the roadster and cabriolet bodies the clover leaf seating arrangement is adopted; the seats have been so disposed

that the middle passenger has plenty of elbow room without the driver being pushed so far to the left that he has to sit sidewise.

The comfort of the driver is studied by giving a 6-in. adjustment on each pedal, and so mounting the steering column that it can be moved to suit the driver's length of arm. These adjustments give practically the same effect as an adjustable seat without calling for extra weight in the body to enable the latter to be made rigid.

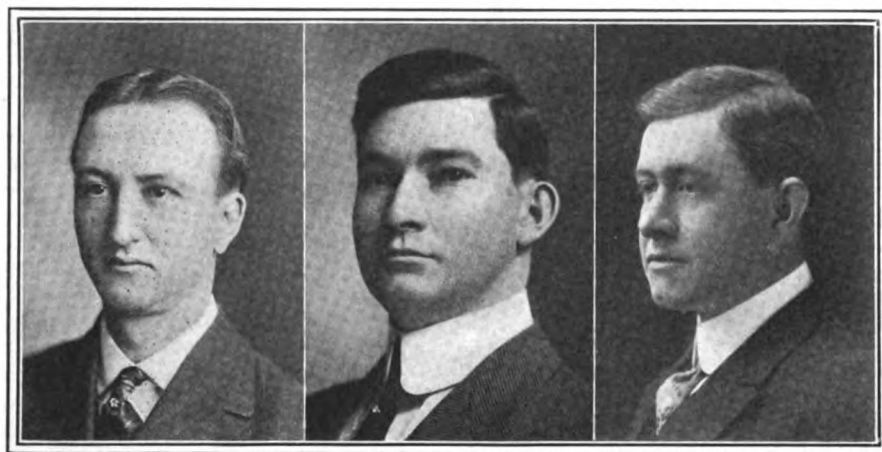
A special point is made of the quality of the leather used for upholstery, which is an enameled-finish variety. It is fitted without buttons, which, in conjunction with the smooth surface, makes it easy to keep the surface clean.

Another and quite different way in which the Westcott engineers have favored the convenience of the driver, is in the disposition of small parts requiring attention, and one result of this is that there are only five greasers under the body.

Lightness has been studied; the motor has pistons and cylinders as the only cast iron parts, the whole crankcase being aluminum. The rear springs are cantilevers of chrome-vanadium steel and are 52 in. long; very short shackles are used at the front ends of these springs, this being claimed to eliminate roll while not affecting any riding quality. The chassis has a unit power plant and Timken axle equipment, with a driveshaft of the open type and a double torque arm.

Accessory equipment includes a clock, dome lights in the sedan, double tonneau lights, and, on the touring cars, a special fitting for stowing the Jiffy curtains wherein they are held by springs and cannot rattle.

Spencer-Carroll Enters Jobbing Trade



John O. Hughes, Stamford, Tex., General Manager

H. E. Spencer, Stamford, Tex.

M. W. Carroll, Jr., Marlin, Tex.

The Spencer-Carroll Co., Waco, Tex., will open an exclusively wholesale supply house Feb. 1, succeeding the Stamford Motor Co., Stamford, Tex., which has operated a wholesale accessory business in connection with the Ford dealership; the latter will be dropped. The following compose the company: J. E. Spencer, Carbon, Tex.; George S. McGhee, Waco, Tex.; M. W. Carroll, Jr., Marlin, Tex.; H. E. Spencer and John O. Hughes, Stamford, Tex. Spencer is a prominent banker of West Texas, operating a string of banks; McGhee is also a banker and ranch owner; Carroll is well known throughout Texas among the automobile trade, having been connected with the Chalmers agency in Texas for a number of years. He is at present head of the Carroll Auto Co., Marlin.

H. E. Spencer is a brother to J. E. Spencer and has been in the trade for a number of years, being manager of the Apperson Motor Co., Dallas, before coming to the Stamford Motor Co. as assistant manager and buyer. He will occupy the same position with the Spencer-Carroll Co. Hughes, now manager of the Stamford Motor Co., will be active manager of the new company. Harry Knight, now connected with the Stamford Motor Co. as traveling salesman, will not travel for the new concern, but will have complete charge of the service end of the business. He was connected with the Electric Appliance Co., Dallas, as traveling salesman and left it to affiliate with the Stamford Motor Co. about six months ago.

Simplified System

Page 5

Dealer's Legal Status

Liens and Liability Are Questions of Pertinence to Garagemen—Three Ask Advice as to How to Proceed in Emergencies

By George F. Kaiser

Have You Doubts?

There is always a time when any of us is not just sure of what is the right step. In business there are many such times.

If such an occasion arises in your business and if it seems to involve the law, Motor World will gladly advise you. If you write to the Legal Department of this paper your question will be answered without charge.

If you so request your name will not be published; having the question answered here will benefit not only yourself but thousands of other readers, many of whom will profit by the answer to your question.

Consulting our legal editor may enable you to avoid rushing into a suit that is hopeless—on the other hand, it may give you courage to stand up for your rights and go to law if necessary to obtain your rights.

On this page this week are three questions and answers. Are they not interesting to you? Even so will your question interest others.

Repairman Can Collect Storage After Repairing Provided Owner Does Not Call for Car in Reasonable Time

Editor Motor World:

If a person files a lien on a car, can he collect storage on same while holding it for said lien? Also, can a garage charge storage on a car after it is repaired if the party owning same is notified and can't pay for same for a month or so, if nothing is said about storage?

Royal, Neb.

G. S. V.

If possession of the car was parted with and a certificate was filed in the office of the clerk of the county where the work was done, of course you cannot collect storage while the car is subject to this lien. If you retain possession of the car, however, I think you would be perfectly justified in attempting to collect

storage for the entire time the car was in your possession.

The Nebraska law does not seem to specifically touch on this point, but if I were in your position I would certainly maintain that I was entitled to storage charges for the time I kept the car.

After a car is repaired and notice is given to the owner to come and remove it from your place of business, you are justified in keeping the car as a bailee for hire and charging storage until the owner removes it. The latter, of course, has reasonable time to remove the car after receiving notice from you that it is ready for him. What is a reasonable time will depend on the circumstances. If the man lives in the same town, there is no reason why he should not remove it within a couple of days; while if he lives out of town, a week or even longer might be held not to be an unreasonable time to neglect to call for the car.

Mississippi Lien Does Not Include Materials

If Labor Is Performed, However, the Car Can Be Held

Editor Motor World:

In regard to garagemen's lien for work and materials, wish to know if this applies also to materials only when sold by an accessory store, and does it include tires as materials?

Edward S. Curtice.

Meridian, Miss.

The Mississippi garagemen's lien law is primarily for work or labor expended in improving an article of personal property and the lien for materials furnished is merely incidental to that given for the labor performed.

As I understand the law, when materials are furnished and labor is not expended in the improving of an article of personal property, the person who furnishes the materials has no lien. Accordingly, accessory and supply stores would not have a lien for accessories and supplies furnished.

There is a nice question, however, which, so far as I know, has never been determined: Suppose a motorist came to a supply store or garage with a broken

shoe and tube. If the dealer took off the shoe, repaired it and replaced it and was able to keep the car in his possession, I think he would undoubtedly have a lien for his labor and the material furnished by him in making the repairs.

Suppose further, that the shoe and tube were in such bad condition that they could not be repaired; if the dealer took off the old shoe and replaced it with a new one I do not see why he would not have a lien for his labor and for the new shoe which he furnished, provided always that he was able to keep the car in his possession.

Liable if Car Is Taken

By Man Other Than Owner

But Warning Sign Will Protect Against Stolen Articles

Editor Motor World:

When we take a car in for storage over night or by the month and the car is taken out by some other party than the owner, are we held responsible? If some of the tools or a robe is taken out of the car while it is in our possession, are we responsible? In regard to fire: If the car should burn up while in our possession are we liable for the amount of the car if we have a sign up to this effect: Not Responsible for Cars in Case of Fire or when Cars are Taken out Except by the Owners?

E. P. K.

Answering your inquiry, I would say that when you take a car in for storage over night or by the month, and the car is taken out by some other party than the owner, you will be held responsible for the loss of the car or any damages caused to it by the party who takes it from your garage, unless you can show that there was no negligence on your part in permitting the car to be taken out by anyone other than the owner.

This is a difficult thing to show and great care should be taken by you that the car is not withdrawn from your garage by any person other than the owner, unless you are assured that that person is properly authorized so to do.

If tools or a robe are taken out of a car when in your possession, unless you can show freedom from the act of negligence, you will be likewise liable. To safeguard yourself against loss of this kind it is best to provide locker space or checking space and put up a sign that you are not responsible for articles of this character unless they are put in the locker or checked. In case of loss when this is done, you will not be responsible.

With regard to loss by fire you would not be responsible, as you are not an insurer of the property left in your care. The idea of putting up a sign is a good one.

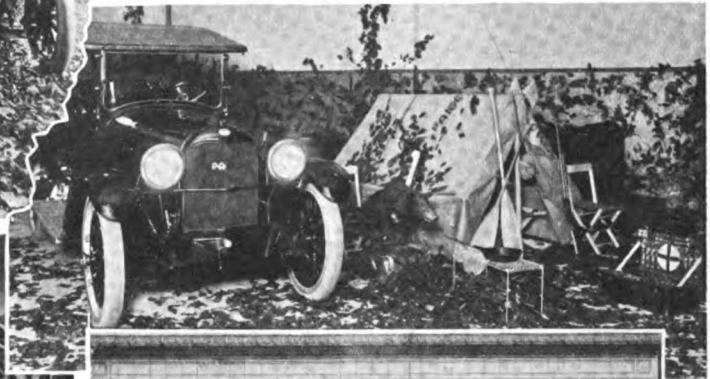
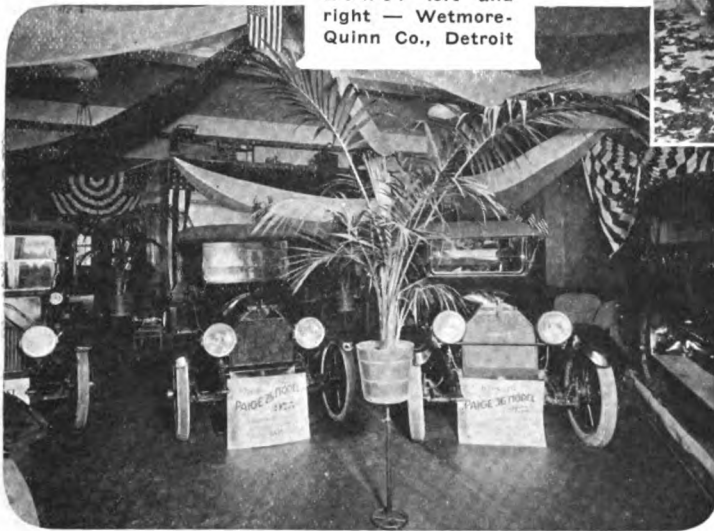
Paige Jubilee Week Brings Out Artistic Salesroom Displays



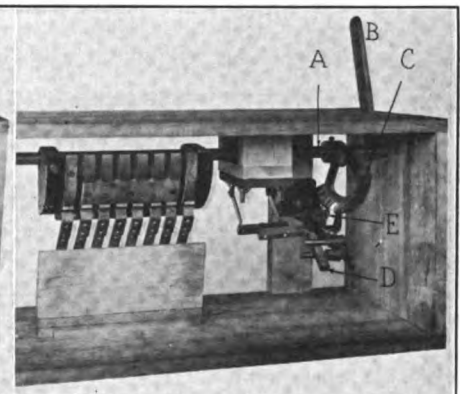
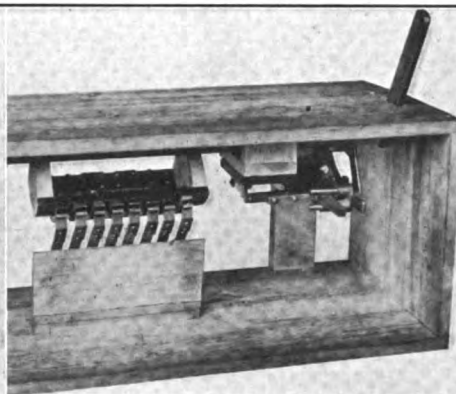
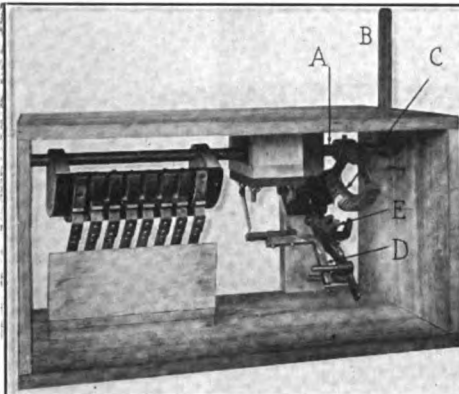
H. H. Karsten
& Bro., Zeeland,
Mich. Exterior
display



Upper left — Motor
Sales Co. of Grand
Rapids. Center
right — Frye Motor
Car Co., St. Louis.
Lower left and
right — Wetmore-
Quinn Co., Detroit



THE PAIGE JUBILEE WEEK, which was held recently in celebration of the sixth anniversary of the building of the first Paige six, was accompanied by some pretty effects in salesroom display. Four are shown above. Every Paige dealer was asked to enter into the plan and to decorate his place of business. Autumn scenes were used in several instances; many of the dealers made sales during the week, and all secured prospects



CAN'T CLOSE CHARGING SWITCH WHILE CONTROLLER IS OFF NEUTRAL

Despite the care exercised by trained drivers, the switch on an electric truck is occasionally thrown in while the controller is off the neutral point.

The fact that this accident hazard existed led the Eastman Kodak Co., which operates a fleet of electric trucks, to develop a safety device to prevent such an accident. The mechanical engineering department of the company has just completed the installation of the device on its trucks. With this mechanism it is absolutely impossible to

close the main switch when the controller is off the neutral point.

The photographs show one of the devices mounted in a box similar to a driver's seat in the rough. The photographs are taken from the front. The driver sits at the left hand side of the box, operating the control lever (B), Fig. 1, with his left hand. The rheostat selector shaft (A), to which the controller lever (B) is attached, also carries a sector (C), which prevents the operator from engaging the switch except when the se-

lector is at the neutral point. A lever (D) has been attached to the main switch, from which the handle has been removed. This lever has a pawl (E). There is a slot in the sector (C) through which the pawl (E) on the lever actuating the switch must pass in order to close the switch. The sector (C) is so located that when the switch is closed the rheostat selectors are all at the neutral point. As the pawl (E) is held forward by a pressure spring, the switch lever can disengage the switch in any position.

SAMPLES OF ADS THAT IMPLANT WINTER MOTORING THOUGHT

In Winter in Summer

Wise Owners... **Winter Weather**

\$116 **Top Removable Summer Top**

LEAK-PROOF **Piston Rings**

Be Prepared for the Terrors of Winter. **ONLY 1/3¢ per hour to operate**

Summer and Winter Driving—Two Cars in One

Winter Sales for Jefferly Dealer

Easier Starting in Cold Weather

Master Vibrator

You need one on your Car this Fall and Winter

It's High Time to Heat Your Garage

Keep Warm in Your Ford This Winter

Hodge Brothers WINTER CAR

Saxon "SIX" With Detachable All-Season Top

Champion

Ice—Fire

Shoo Away This Winter Terror!

Without Priming!

TEXACO MOTOR OIL 8

Supreme Auto Oils

When Jack Frost Creeps into Your Car What Happens?

19

THESE ADVERTISEMENTS are the subject of a WINTER BUSINESS discussion by Rellly in the story on the next page. The advertisers or products are: 1—Jefferly. 2—McQuay-Norris Mfg. Co. 3—Kissel. 4—Rose Mfg. Co. 5—Jefferly. 6—Kissel. 7—K-W Ignition Co. 8—Texas Co. 9—Gulf Refining Co. 10—C. H. Foster, Owl light. 11—Scientific Heater Co. 12—McQuay-Norris. 13—Stromberg Motor Devices Co. 14—Edward McClintock. 15—Dodge Bros. 16—Steer Warms. 17—Champion Spark Plug Co. 18—Scientific Safety Garage Heater. 19—Saxon

Let Us All Boost for More Winter Business

The Manufacturer, the Dealer and the Garageman Should Combine in
This Work Says the Callawassa Tradesman

By Ray W. Sherman

IT HAD been a dull December day. The just-about-to-snow feeling had been dark and oppressing, and as night fell suddenly at 5 o'clock the snow flakes began to come down with it. It was a fine night to sit inside and read about murder and arson.

The Callawassa Motor Trade Association was due for a meeting this evening, and instead of going home to supper—Louis Beauregard always referred to it as dinner—there was an eating session on at Pierre's. There was Louis Beauregard, who had a garage and a French accent; Harvey Burt, who headed the Garage Division of the association; Reilly, who sold the Sennett; Ben Doyno, who supplied supplies and accessories, and Tommy Trumbull, Reilly's junior lieutenant.

With the coming of cold weather the association had hired a regular janitor and had instructed him to keep the rooms of the association always habitable; wherefore, as soon as they had paid Pierre all they owed him they went down the street and lined up around the blazing grate in the association rooms to wait for the coming of the rest of the members.

"The Right Dope"

As they smoked and talked, Reilly picked up a magazine from the table and flipped the pages; one or two of the others did the same thing. They chattered away as men—and women—will.

"This looks like the right dope to me," suddenly exclaimed Reilly, as he held a magazine up in one hand so they all could see to what he referred.

"What eez eet?" asked Louis Beauregard.

"This winter business advertising," added Reilly. He passed the magazine on so the rest could look at it. The ad to which he referred was one of a car manufacturer in which the car was shown with a detachable body, in the midst of blowing snow. Outside it was winter, cold and drear, but inside the car it looked warm and cosy.

"Zat ees good dope!" agreed Louis.

"And if I'm not mistaken I've seen quite a few ads of that sort," contributed Tommy. "Let's give a look around here and see if there aren't some others." Following his own suggestion he reached for another magazine. The others did likewise. They took magazines, trade papers and newspapers.

"Here's one!" exclaimed Tommy. It

was the ad of a piston ring maker. It started off with a suggestion of "Summer Service in Winter Weather," and went on to tell how this piston ring could increase the pleasures of winter driving.

Some one else found another, and another, and it wasn't long before the group had quite a collection.



"This looks like the right dope to me!"

"That's great stuff!" said Ben Doyno, Callawassa's biggest supply and accessory dealer.

"Sure is!" agreed Harvey Burt.

"It would help things if we could have a lot more advertising of this kind—and we ought to do more of it ourselves," said Reilly. "We could all help our own businesses if we followed the lead that has been set by some manufacturers, and those manufacturers who haven't

On the preceding page are samples of the winter business boosting that is discussed in this story by Reilly. On the following page are two other pertinent illustrations.

started this kind of advertising would help both themselves and us if they got into line and boosted for the winter use of cars.

"Now, take our own people. We build one of the nicest little sedan jobs made—detachable. It also can be equipped with a heater, but how do we advertise it?

We run advertising on what a nice car it is and how classy and worth-the-money it is, but we do not step right out and say to the prospect: 'Here, old top! This jacking up of your car in the winter is all bunk! Why give up the pleasure of driving just because the calendar says it's winter? With a starter, a detachable sedan body and a heater you can be as comfortable as in summer. So get that old dope out of your system and keep going all winter.'

"We don't tell him we are selfish in this advice, but we are. If he keeps his car going all winter it means more work for the garages, more sales of cars, more sales of accessories, and a general briskness where we have always had a slump. Lord knows, we need it!"

"Yes, we need it!" agreed Louis Beauregard.

"Then there are all sorts of winter-comfort devices," continued Reilly. "There are heaters, gloves, wheel warmers, robes, caps and no end of things that add to the comfort of the motorist in winter. Many of these manufacturers and sellers emphasize the quality of their goods just the same as if it wasn't winter. It is all right to follow that line of advertising, but what is most effective right now is a line of advertising that will make the motorist see that the stuff can be of use when the snow flies.

Make Motorist See the Light

"You see, you must bear in mind the mental attitude of the car owner. Until recently the enclosed car has been an expensive proposition. He couldn't afford it; so he got into the habit of putting up his car during the winter. There is no need for it so far as the roads are concerned, for we haven't a street that isn't passable ninety per cent of the time.

"The motorist's principal objection is that of lack of comfort. Today we have a lot of things that add to his comfort, so why not advertise the comfort that can be given by whatever we have to sell. The shock absorber man has a good appeal in his goods, because no matter how well kept a city is there are bound to be some bumps in the roads. The oil companies, with their gasoline and oil, have a most excellent product for winter advertising.

"The same applies to carbureters, and other motor parts. The horn maker has an appeal in the security that comes from a good horn when the snow is swirling

and pedestrians are muffled up. A good spark plug is necessary in cold weather. The tire maker, too, has an appeal, especially if he has a good non-skid tire. The clock maker could advertise: 'Don't bother to go away through your overcoat and other coats after your watch. Have the time on the dash.'

"Right idea, Reilly," commented Doyno.

"The goods are all right, the season is all right and the buyers are here. The missing link is the advertising. Every winter catch line would help if it kept suggesting to the car owner that he need not lay up his car in winter.

"And there is another side to it," continued Reilly. "It is the part we ourselves should and can play. A western jobber last winter kept nearly one hundred repairshops and garages open that were in the habit of closing up during the winter. He showed them how to go after the car owner; he showed them how to interview him, to write him letters, to advertise, and to hammer him on this theme.

Keep the Shop Busy

"He urged the garagemen to advise the car owner to keep his car running, or, if he didn't want to keep it running, to bring it in and have it overhauled while the shop had lots of time. The garagemen were in some cases able to offer time payments on work of this kind. And not many took advantage of the time payment offer. This kept the shops running during the winter—full of work. It helped in the sale of accessories; it made the winter a profit instead of a loss.

"And we dealers who advertise in the

Peoria Garagemen Planning Now for Winter Trade

"Your" car this winter

WHERE WILL YOU KEEP IT?

A car is sensitive—it must have the right attention to be fit and ready in the Spring.

If an Electric, the Batteries must be kept charged; a Gas car needs just the right temperature; the wheels should be jacked up off the tires.

23,000 SQUARE FEET OF FLOOR SPACE—

We can easily accommodate 200 cars this winter. One of the proprietors in charge of the night force assures you perfect service 24 hours of the day.

LET US OVERHAUL OR REBUILD "YOUR" CAR—

Our Repair Department is equipped to completely overhaul or rebuild your present car. Why not convert it into a little roadster or a classy runabout? Let's talk it over today.

DO YOU NEED NEW BATTERIES?

Let us figure with you on new batteries for your Electric. We can replace your old batteries with Philadelphia "Diamond Grid," the best vehicle battery on the market, at amazingly low cost.

750 "CROWN SERVICE" Patrons
Make YOUR Name No. 751.

CROWN AUTO CO. 828-830 MAIN 904-906 STREET

The Crown Auto Co., Peoria, Ill., does not mean to let its business slump just because winter is coming. It will follow this newspaper ad with others and with letters

Grossman Aims to Get Some Christmas Business



The Emil Grossman Mfg. Co., Brooklyn, has prepared for the Christmas trade by putting up sets of spark plugs in appropriate boxes. The sets run from 2 motor-cycle plugs up to 8 automobile plugs and the prices are from \$3 to \$8. They are useful remembrances and, as Grossman explains, are appropriate gifts to the neighbor who has been generous with his car during past months

Callawassa papers and who have winter cars should hammer this winter point. Inasmuch as winter is thrust upon us and we can't dodge it, why not take advantage of it and make it help sell our stuff? You've been carrying some of this kind of advertising, Ben, haven't you?"

"Yes, and it paid," asserted Doyno.

"If we all—dealers, garagemen, repairmen and manufacturers—get together and boost for winter business we ought to get it, more of it at least," concluded Reilly.

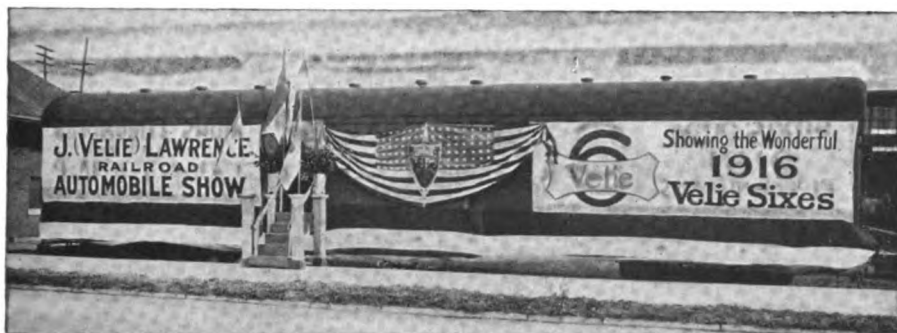
"Well," gesticulated Louis Beauregard, "why not? Let's do it."

Gillette Tire Building

EAU CLAIRE, WIS., Dec. 6—Work has been started by the Gillette Safety Tire Co., formerly of Grand Rapids, Mich., on the first unit of its permanent factory and offices at Eau Claire, Wis. The building will be of reinforced concrete, 60 x 250, on a tract 300 x 150,

Simplified System

Page 5



Lawrence put his display in an express car and spent a month going from town to town. Advance advertising helped him realize on the novelty of the plan

He Carried His Show to His Dealers

Chicago Velie Distributer Didn't Wait for His Organization to Come In—He Went to It

CHICAGO, Dec. 11—J. "Velie" Lawrence figured that if he wrote circular letters or held a dealer convention in his salesroom he wouldn't get very many dealers in from his 80 counties to see his new Velies; he also figured that if he could take the show out into the territory it ought to make a hit—and get some new dealers. Therefore, he put a Velie exhibit in an attractively trimmed and decorated car and has just concluded a very successful business promotion trip. He also claims to be a pioneer in ventures of this kind. The show consisted of a 60-ft. end-door express car attractively decorated with flags, banners, bunting and signs and well lighted.

Car Prettily Decorated

The interior of the car was done in a color scheme of white, green and gold; the ceiling was hidden by green foliage with white blossoms with a string of electric bulbs running the entire length and hidden in foliage, making a most beautiful effect when lighted. The walls were artistically decorated with green hangings, trimmed in gold, while the floor was carpeted with matting.

A stairway, also carpeted, leading to the side door, made access easy; four gilded pillars stood on each side of this stairway, on top of which rested vases filled with the same foliage that covered the ceiling; four pennants on long staffs were also on each side of the entrance, which was draped with portieres of the same material that covered the side walls.

The exterior, covered with large display signs, flags and bunting, was lighted at night by electric lights placed at short intervals across the top. These exterior decorations were removed when the car departed from one town and again draped when the next stop was made.

The show was on the road just four weeks, making twelve stops, two days to

a town with one exception. Attractive display advertisements appeared in the local newspapers previous to the arrival of the show, so that by the time it reached a town it was known about by practically everyone. This advance advertising, together with the originality of the proposition as a whole, attracted a very great amount of interest.

The party, consisting of several members of the J. V. Lawrence Sales Organization, in charge of W. W. Baker, manager of the wholesale department, left Chicago, Oct. 9, by boat for Muskegon, Mich., with show cars, demonstrator, decorations, etc., where the express car was found waiting. Sunday was devoted to trimming it, placing and blocking the several models. Monday morning the doors were thrown open to the public, who took advantage of the opportunity of seeing an automobile railroad show for the first time, and many

prospects, both retail and wholesale, were obtained.

Tuesday, Oct. 12, the car left for Grand Rapids, Mich., via American Express, where it remained the 13th and 14th, and where it was joined by J. V. Lawrence, who stopped with the party for several days. Here an unusual amount of interest was shown and the first dealer appointed.

The itinerary for the remainder of the trip follows: Kalamazoo, Mich., Oct. 15 and 16; Ft. Wayne, Ind., Oct. 18 and 19; Marion, Ind., Oct. 20 and 21; Logansport, Ind., Oct. 22 and 23; Lafayette, Ind., Oct. 25 and 26; Terre Haute, Ind., Oct. 17 and 28; Danville, Ill., Oct. 29, 30 and 31; Champaign, Ill., Nov. 1 and 2; Kankakee, Ill., Nov. 3 and 4; Joliet, Ill., Nov. 5 and 6, which was the last stop; Sunday, the 7th, the party returned to Chicago.

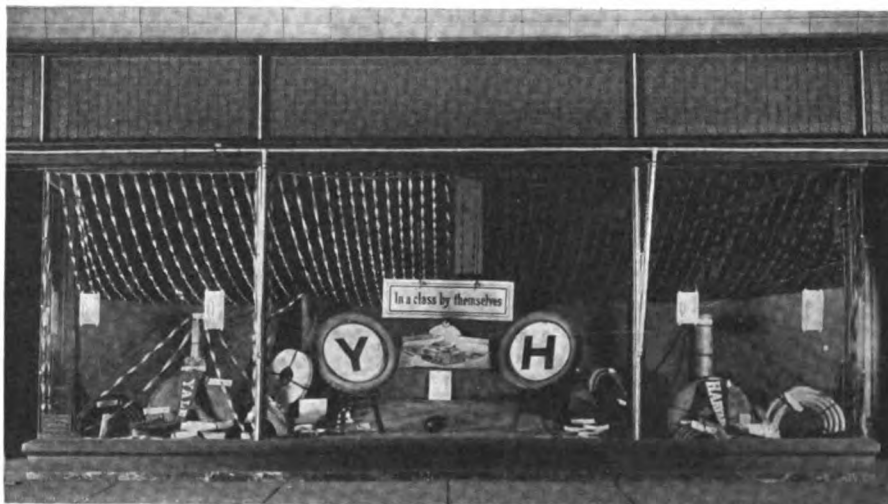
Crowds at Every Stop

The trip was a complete success from every standpoint. At every stop crowds awaited the opening of the car. Many thousands of interested automobilists viewed the Velie line. The Model 22, six-cylinder, five-passenger touring car, listing for \$1,065, being entirely new, attracted particular attention. Hundreds of prospects were obtained and demonstrations made. Dealers were appointed in many of the cities visited and also at some of the smaller towns, these dealers having made a special trip to the nearest large town in which the show was exhibited. In the cities where dealers were not obtained some of them have been closed since the party returned.

Simplified System

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Goodrich Effects a Strictly Neutral Window



When the Yale-Harvard football game was the big topic of interest in Boston the B. F. Goodrich Co.'s branch in that city built a window that was half Yale and half Harvard. The college colors were used. The placard above the Y and H says: "In a Class by Themselves," which means Goodrich, Yale and Harvard

Points Every Repairman Should Know— About the Studebaker

THERE is little to be said about the Studebaker motor except that the pistons may be removed through the bottom of the crankcase.

The oiling system is a circulating splash design with force feed to the timing gears. A plunger pump draws the oil from a reservoir in the bottom of the crankcase and delivers it to the splash troughs and the timing gears.

In case the pump seems to be clogged it is a good plan before taking it down to try priming it by pouring oil through the opening at the plug, Fig. 3. If the pump is removed or if the car is allowed to stand for several weeks the pump must be primed before starting the motor.

On the 1916 model the oil pump is situated between the flywheel and the crankcase and can be removed through holes in the flywheel.

In timing the ignition on the 1915 motor, after the front gears have been torn down, the best way is first to make an assembly of the cross-shaft gear, housing, pump, distributor and magneto breaker box. Then turn the cross-shaft gear around until the timing depression A, Fig. 2, on the magneto gearing comes directly under the timing button B on the distributor cover. The magneto is now in proper position for a spark in No. 1 cylinder.

Turn the motor $\frac{3}{4}$ inch past upper dead center for cylinder No. 1 and it will be in proper position for a fully retarded spark. The cross-shaft assembly may then be mounted.

Loosen the spark control rod and bring the breaker arm to its extreme retarded position. The cam C should then be loosened and turned to the right or clockwise until the breaker points are just ready to separate.

A close check on this adjustment may be made as follows: Make sure that all electrical connections are complete; re-

THIS is the fifth of a series of articles which will appear from week to week on knotty points in the care and repair of the various popular cars.

Although most cars are much the same, there are details on every one that give difficulty to the repairman the first time he encounters them, and it is the object of this series to give enlightenment on these points.—The Editor.

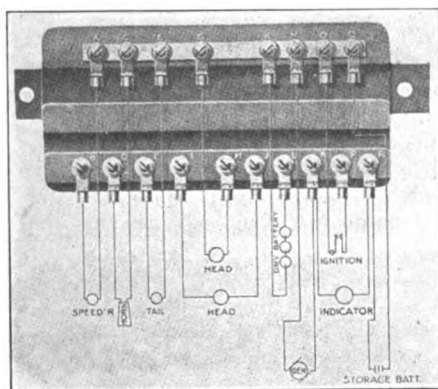


Fig. 1—Back of junction box, showing how various circuits are connected to it

move the high-tension cable leading from the coil to the center terminal of the distributor; and take the cover from the safety spark gap at the side of the coil. Fully retard the spark lever and throw the switch over to the battery. Turn the motor slowly until a spark jumps

at the safety gap. If the flywheel has traveled just $\frac{3}{4}$ inch beyond the top dead center mark the timing is correct, but $\frac{1}{8}$ inch either way is near enough.

In cleaning or adjusting the carbureter be careful not to bend the spray nozzle needle arm.

Caring for the generator offers nothing out of the ordinary, but it might be well to mention that the commutator should be kept smooth and clean by applying the finest grade of sandpaper to the surface while the armature is rotating. Then it should be wiped clean with a dry cloth. The brushes should be similarly treated.

When the motor is running at a speed corresponding to 15 m. p. h., the meter should read about 12 amperes.

To determine the charging current an ammeter must be inserted by disconnecting the wire from terminal A, Fig. 5, and placing the instrument in circuit at this point. The maximum current, when the generator is warm and the battery is fully charged, should not exceed 15 amperes.

When removing the body it is not necessary to disturb the wiring; merely disconnect the switch wires leading from the horn and head lamps, disconnect the relay wires running to the generator, and also take off the wires running from the terminal block on the front side of the dash to the coil.

Fig. 1 indicates how the various circuits are connected to the back of the lighting switch. This should be of aid in trouble finding.

Should the starter clutch slip, thor-

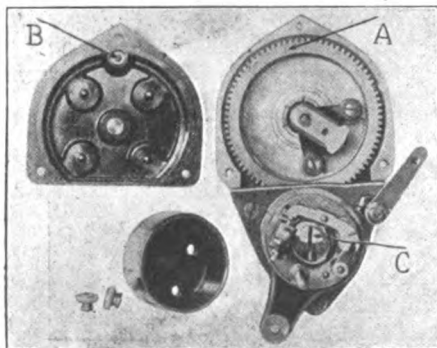


Fig. 2—Breaker and distributor mechanism. Points A, B and C are concerned with the timing of the spark

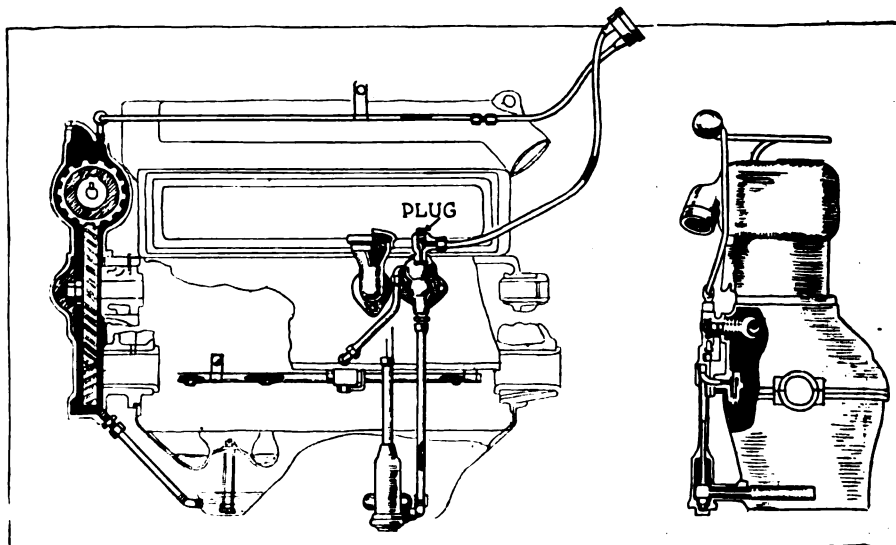


Fig. 3—The oiling system is a combined force feed and splash system. On the 1915 model the pump is driven from the camshaft as shown. Failure of the oiling system to operate after a long period of rest may be cured by priming at the plug indicated

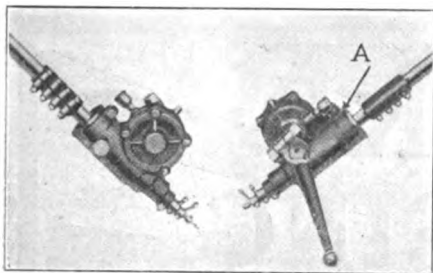


Fig. 4—Steering gear, showing end play adjustment at A

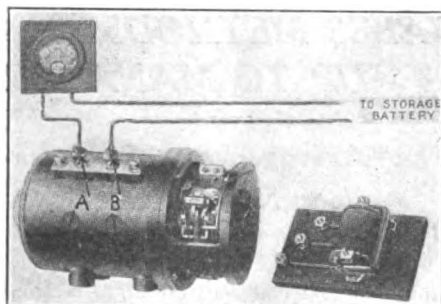


Fig. 5—Generator and relay with terminals for ammeter shown at A and B

ough washing with kerosene should remedy the trouble. The washing is done by removing the plug in the top of the starter clutch housing and injecting the kerosene with a squirt gun. After the clutch is cleaned fresh cylinder oil should be put in.

To overhaul the gearset it is well to note that all the gears may be removed without dismantling the unit. It is only necessary to unbolt the cover plate A, Fig. 6, at the front end of the gearbox and then the gears may be pulled out.

The roller bearing adjustment at the front end of the gearset is opposite to that expected; in other words, the notched adjusting member B should be

turned to the right instead of the left when looking toward the front of the car. This member is reached through an inspection plate in the top of the housing.

In the general lubrication of the car it is well to remember that no oil should be put in the steering column, for it causes the fiber bushings to swell and the steering gear to bind, and the grease cup running to the clutch collar should be given one turn every 50 miles on the 1915 model. If grease should work out of the axle ends on to the brake drums it may be due to the level being too high or to the use of too light a grease. Grease should only be to the level of the plug, and a medium grease should be used.

In lining up the wheels they should be toed in $\frac{1}{8}$ to $\frac{1}{4}$ inch and they should be $\frac{1}{4}$ inch nearer at the bottom than at the top.

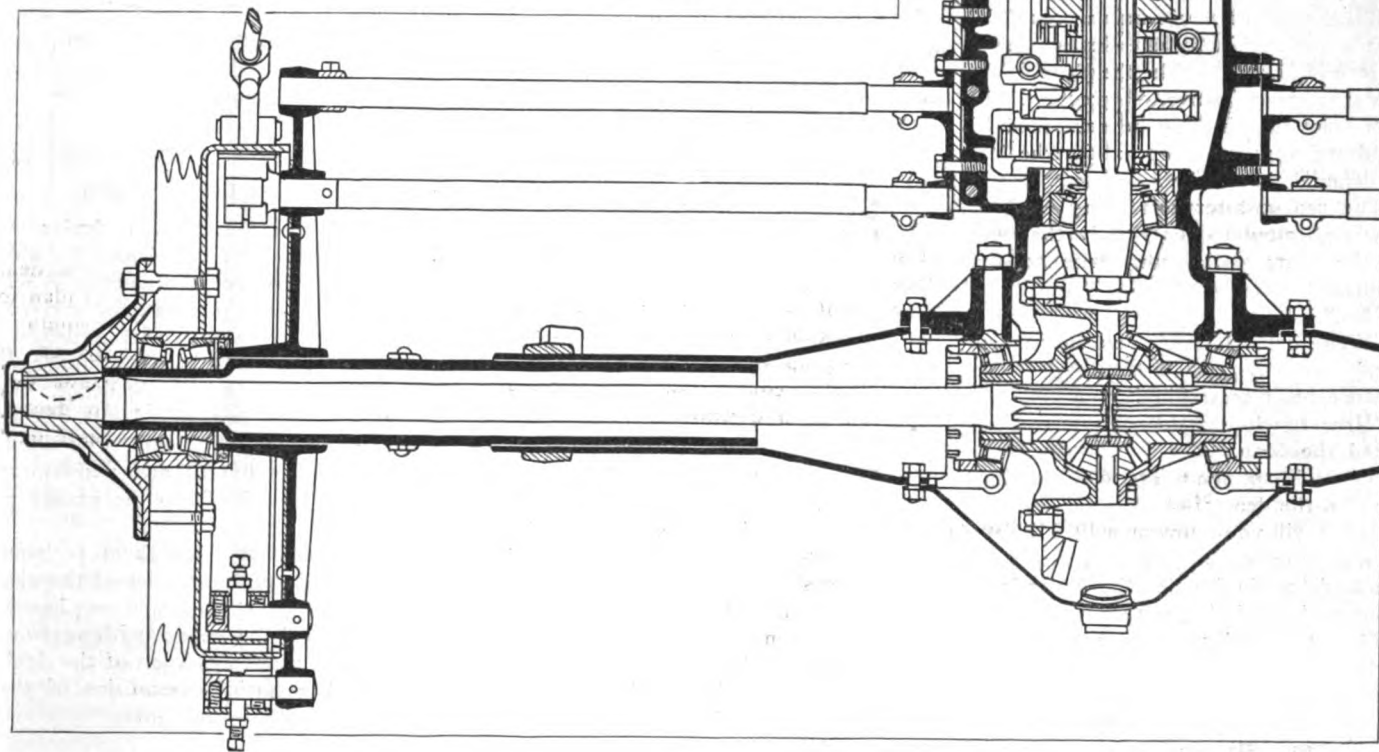
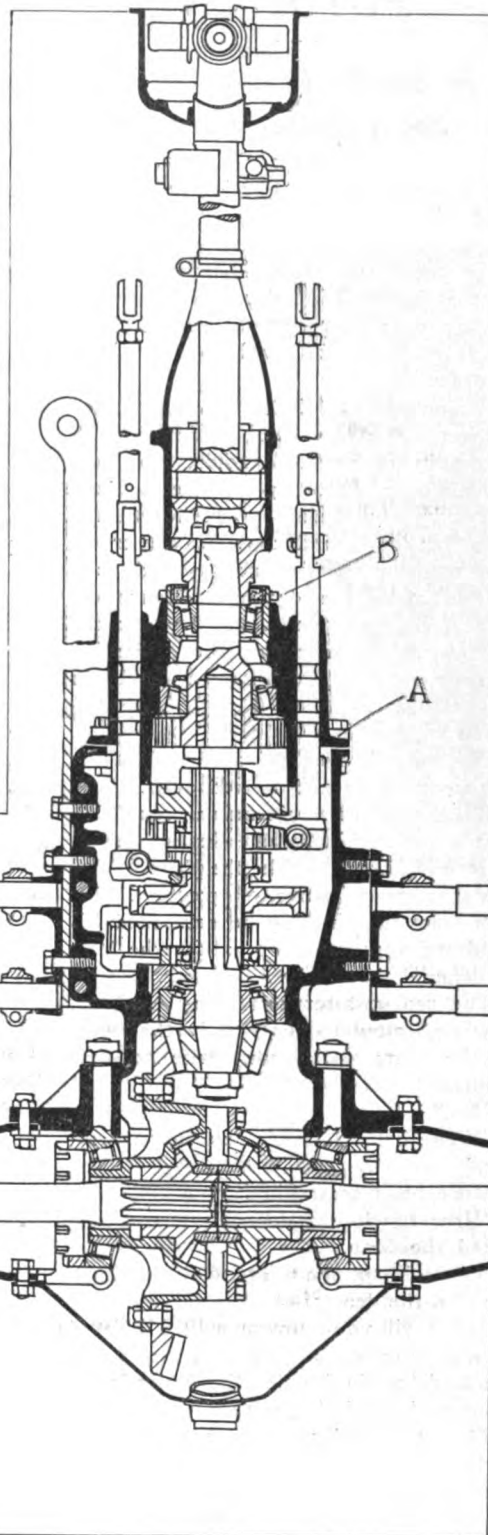
End play, Fig. 4, in the steering is removed by loosening the bolt on the top of the housing and then screwing the nut A into the case until the play has disappeared. Wear in the teeth of the worm gear may be compensated for by turning the gear one-quarter the way around so that a new part of the gear is brought into contact with the worm. The clamp bolt is loosened and the steering arm is removed, then turn the steering wheel one-quarter the way around and put the steering arm back.

Adjustment of the bevel pinion is

Fig. 6—Section through axle showing constructional details. Gears may be removed by unbolting at the end at A. The bearing adjustment is at B

through the nut, which adjusts the Timken pinion bearing. To do this the hand-hole cover must be removed from the gearcase and the setscrew which holds this nut must be loosened. Great care must be exercised not to adjust this pinion too tight. The rear wheels should be jacked up the gear lever placed in neutral and the rear cover plate removed, and the working of the pinion and gear should be closely observed.

The axle shafts are removed by unbolting the hub flanges and then pulling them out. After which the wheels may be taken off.



WIDE-AWAKE MERCHANDISING

IF THIS COAT FITS PUT IT ON

It Is Barely Possible It May Seem Made-to-order

This little story carries its own moral. And just because it happened in New York city, where rush and speed and efficiency are over-worked terms, do not let the coat be laid aside without trying to put it on yourself. There are thousands of dealers who will find it a made-to-order fit.

A man owned a Z-Car. He was in the market for a new car. A friend said: "Drop in at the X-Car place and look the car over. I think you'll like it. Mention my name before you leave them." The "friend" is well known in the trade, and mention of his name would have helped make the dealer and prospect better acquainted and would have helped the sale. Anyway, on the "friend's" recommendation the Man was ready to buy an X-car.

He dropped in.

He walked over to the car on the salesroom floor and looked at it.

The dealer and a salesman were talking at the rear. Finally the dealer walked over and stood beside the Man. The dealer gave no word of greeting. He was busy thinking, so he scratched his head and apparently waited for the Man to demand that he be sold a car.

The dealer, after scratching his head a while, called to the girl in the office at the rear: "Did you write to that woman?"

"No."

"Write her a letter. Send her a catalog."

More head scratching.

"How much gas does this car use?" asked the Man.

"O-o-o-h, sixteen miles to the gallon," drawled the dealer.

"What will you allow on a 1915 Z-Car?"

"A-w-w-w, can't give you mor'n six hundred," again drawled the dealer in far from an ingratiating tone.

Then the dealer turned around for a little exercise and failed to be a gentleman. He also failed to take the lead that the Man threw at him.

The Man went up the street and placed his order for another Z-Car without further ado.

Darned fool, wasn't he?

Who, the Man?

NO-O-O-O! The dealer.

IS THERE A DIRTY OIL PAN ON YOUR SALES FLOOR?

Would you buy a car that leaked oil all over the territory in which you reside?

You would not.

Do the cars you sell leak oil all over the territory in which you sell cars?

If they don't, what is the meaning of this greasy, oil-covered drip pan under the cars on your salesroom floor? If the car doesn't leak oil where did the oil come from?

If the oil was on the pan before it was put there, why don't you clean it off?

If the car doesn't leak oil why do you have the pan there at all?

If you must have something under that car why not put a big mirror there? Then you'll have to keep it clean if the car SHOULD leak oil, and the chances are you'll stop the leak.

Would a puddle of oil under a car mean anything to you if you were a prospect?

PERSISTENT WORK MAY WIN SALE AND GOOD-WILL

Fear that the prospect may become offended at the aggressiveness of the salesman may be unfounded. There are many instances to the contrary.

One metropolitan dealer makes contests a part of his selling plan, and the salesmen naturally are desirous of closing up all possible sales before the end of the contest that is on at the particular time in question.

This causes them to try to get the sale across NOW instead of next week, and numerous sales have resulted from this last-minute work. And instead of the prospect being offended at the salesman's work he has come to regard the salesman as an "aggressive lad" and a pretty good fellow.

Lasting friendships have been made. Dilatory tactics through fear of consequences might have lost the first sale while the lasting friendship assures not only the first sale but others.

SALES METHODS UP TO MANAGER

The "Averageness" of a Salesman Not at Fault

Have I all the punk salesmen or are motor car salesmen all alike? Are they all a mediocre aggregation? How many dealers have asked themselves this question? Have YOU?

There is an answer to that question, and attention to the answer will mean everything. The answer is this: The conduct of salesmen and the methods that prevail in salesrooms are largely a question of sales management.

The "average" automobile salesman is not a sales manager. If he were he would not long remain a salesman. Therefore, he must be directed and aided by the manager if he is to obtain the results the dealer desires. And that is up to the dealer.

A worker remains "average" because he lacks the initiative that prompts him to climb higher, and he can climb higher only by studying himself and his business and making himself a better worker. Since he lacks this initiative he does not study himself and his business, and the studying must be done by some one else—by the manager.

HE ASKED HIS PROSPECTS TO HELP UNLOAD CARS

Creek L. Fauber, Saxon dealer in Phoenix, Ariz., has a novel plan for aiding prospects to become owners. When his last shipment of Saxons arrived, Fauber rounded up several prospects who were accustomed to driving cars and took them to the freight depot. As fast as a Saxon was rolled out of the freight car its gasoline tank was filled, the engine was started and a prospect was invited to drive it to the garage, a mile distant.

It was necessary for them to pass through the business district of the city at a time of day when traffic was heavy but all reached the garage without trouble but with a good opinion of the flexibility and easy-riding qualities of the Saxon.

HOW NEWMAN GOT INTO A NEW FIELD

Original Methods Were Needed and Were Employed

When Harry Newman, who has long distributed cars in Chicago, took over the Chalmers distribution in Wisconsin, upper Michigan, southern Minnesota and eastern Iowa, succeeding another distributor, it was necessary for him to introduce himself to that territory in a manner that would insure himself a firm footing.

Naturally, he considered a proper understanding with the dealers the first step, so he staged a "Harry Newman Day" in Milwaukee, Friday, December 3. First he leased the seven-story Welch building, Grand avenue and Seventh street, Milwaukee, formerly the home of the Packard, as headquarters and main service station. About 1,500 invitations were issued to dealers to come to Milwaukee as Newman's guests, and nearly 400 acceptances were received.

Visitors were taken in hand as soon as they stepped from the trains. Brand new Chalmers sixes whisked them up Grand avenue to the Newman headquarters to a get-together on the plan of the annual Chalmers convention in Detroit. The actual registration of dealers at the garage was 387.

At 8 o'clock Friday evening Newman tendered a banquet at the Hotel Pfister to the visiting dealers, members of the Milwaukee Automobile Dealers, Inc. prominent city and state officials, and newspaper men. The guest of honor was Hugh Chalmers, president of the company, who came from Detroit with Frank C. Willys, assistant manager of factory sales.

Newman acted as toastmaster and between speeches there were motion pictures of the visitors taken from the time of leaving the train to going to the banquet hall. A vaudeville program was presented.

Newman's campaign included full-page advertisements in the papers of Milwaukee and other centers of population in his new territory. Some of these ads were regular Chalmers publicity and others original Newman copy. The magnitude and originality of his campaign attracted much attention.

Newman's newspaper ads featured his name and his service. The borders of the ads were made up of "Harry Newman." The name appeared 102 times

on the page and the copy was constructive, the headline being: "I believe in Milwaukee and the State of Wisconsin—and Have Backed That Faith With Money."

DIPLOMACY MAKES EASY THE WAY TO THE SALE

The exercise of a little cleverness now and then makes the way of the salesman easier. Instead of being a pest and getting himself hated as an insurance agent is hated, it is better to be a little bit diplomatic.

A prospect was wavering between the A-Car and the B-Car. He could get the A-Car now, but he liked the B-Car better. He was known by all the salesmen in both salesrooms. The prospect decided to walk by the B-Car salesroom

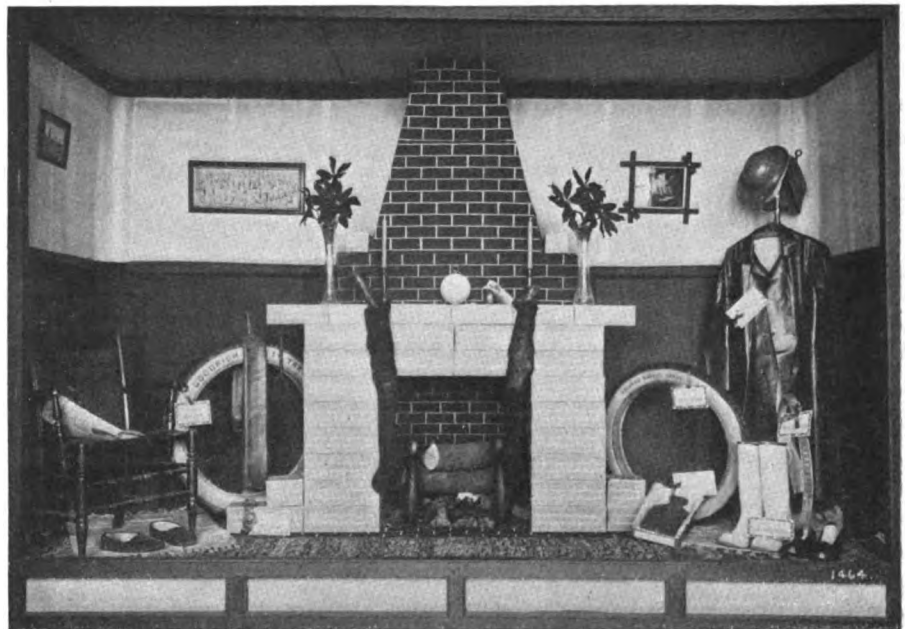
and look at the car through the window. He didn't want to go in or be seen because he knew he would be urged to buy—but he did want to see that car once more.

As he was looking through the window "his" salesman saw him. Instead of dashing out to corral the prospect the salesman got his hat and coat and dashed out the door as if he had to get somewhere and get there quick.

To the salesman's "surprise" he bumped into the prospect, and said: "Why, how do you do, Mr. Blank? How have you decided?" The prospect confessed absolute indecision.

"Well, come inside where it's warm," invited the salesman, who talked a few minutes and then steered the prospect to the sales manager. That was the end of the prospect's indecision.

Try This Christmas Window Display Set-up



THE B. F. GOODRICH CO. GIVES THESE INSTRUCTIONS FOR ERECTING THIS CHRISTMAS FIREPLACE WINDOW—Secure an ordinary packing box, about 36 in. high and 36 in. wide, and about 16 in. deep. Tack brick crepe paper inside to represent masonry.

For the face of the mantel use whatever size of tube boxes you have the most or of face with brick crepe paper.

It is not essential that the upper part of this mantel be applied, but it is advisable and adds a great deal to the display to carry it to the ceiling. This can be made by nailing four boards together with the uprights at a 30-deg. angle, tacking crepe paper over it.

The fixtures for the mantel you can find in the 5- and 10-cent store. We would suggest using an old-fashioned clock, a vase of flowers, two candles in holders, a pipe and a can of tobacco, etc.

The fire is set in the following manner: For the hearth, just lay a piece of brick paper in front of the fireplace. Place two andirons about 14 in. apart; place a globe with a wire protector on it, covering it with red crepe paper or cloth; place a few ashes and pieces of burnt wood over and around

the globe and then several logs on the andirons.

The fireplace may be lit 24 hours a day, thereby making your display of value every minute that it is in the window.

We would suggest covering the floor with a brown or wood colored crepe paper; then several rag rugs over the floor.

An old chair, a pair of bedroom slippers, an umbrella, a hat rack, shoes, boots and duster would add to the homelike appearance of this display.

The background is very easily constructed. Tack crepe paper from whatever height you want the display (we would suggest 8 ft.) and then, for the wainscoting, use the same color of crepe paper as you used on the floor. Brown floor and wainscoting is a very good combination. White can be used for walls. This paper can be obtained at your 5- and 10-cent store.

Use the following articles in the window (as shown in the photo): An automobile tire with the card "For Father," a motorcycle tire "for Big Brother," a bicycle tire "for Little Brother," a hot water bottle "for Mother," boots and rubbers "for Grandfather," goggles "for Uncle Jim," a raincoat "for Uncle Joe," etc.

Simplified System

Page 5

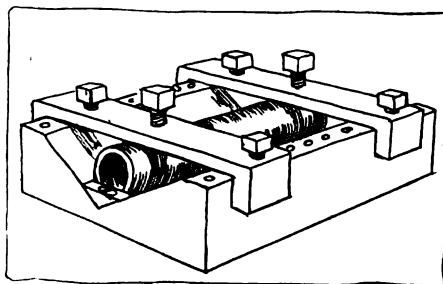
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Drilling Cylindrical Parts

(No. 385)

Where there are many cylindrical parts of one kind to be drilled, the jig shown may be used to advantage. This was designed for wristpins. The wristpin is placed at the bottom of the V slot and then it is clamped firmly in place by the two large set screws. There is a stop at one end of the slot to prevent the wristpin from moving more than so far and the cross-members may be moved near together or farther apart to accommodate different lengths of work.—P. J. Durham, New York.



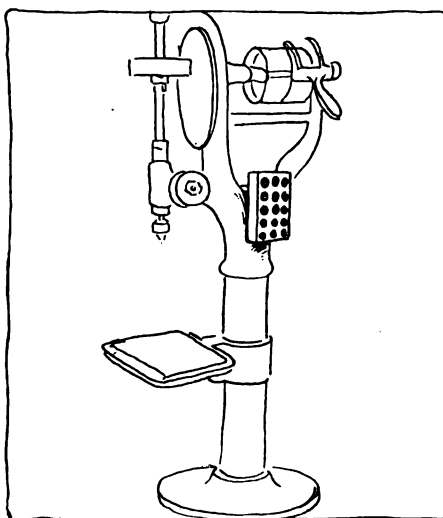
(No. 385)

This jig will hold small parts of the same size to be drilled

Convenient Drill Holder

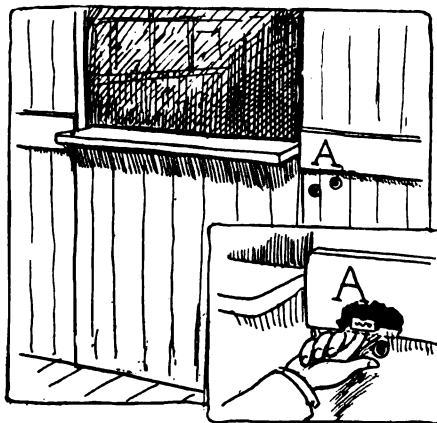
(No. 386)

A wooden block fastened to the side of the drill, and with holes bored in it to carry the different drills, will be found of unusual convenience. This arrangement is preferable to a horizontal block because there is practically no limit to the number of drills that may be carried.—W. A. Raban, Portchester, N. Y.



(No. 386)

A block attached to the press is handy for holding the drills



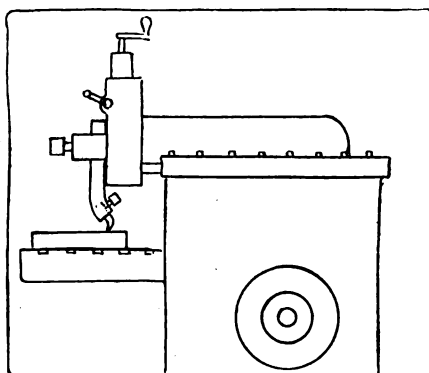
(No. 387)

A hidden latch will keep out intruders

Hidden Latch Button

(No. 387)

The problem of keeping intruders out of the stockroom may be readily solved by simply putting a hidden catch on the door, as shown in the corner illustration. The two electric push buttons shown in the larger illustration are merely decoys so that anyone seeing the door opened will think that it is done by these two buttons. The catch that does the work is under the ledge.—Moriarty Motor Co., Kansas City.



(No. 388)

To avoid chattering a tool holder may be reversed and the tool reground

Preventing Tool Chatter

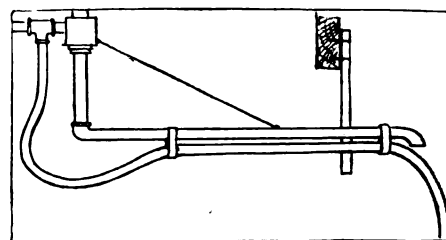
(No. 388)

Under certain circumstances it is difficult to prevent the chattering of the tool in the shaper; especially is this so when the cut is heavy and the table is not braced. This may be overcome by using a high-speed tool holder turned around backwards with the cutting edge reshaped.—Elmer Johnston, City Garage, Portchester, N. Y.

An All Glass Shop

(No. 389)

From the standpoint of light, an all-glass repairshop is ideal, but the heat becomes intense in summer. This objection may be overcome by allowing water to run over the roof and down the sides of the building. A 1/2-in. pipe with 1/16-in. holes at intervals of 4 in. will be sufficient for ordinary water pressures.—R. Vogel, New Rochelle, N. Y.



(No. 390)

The broken down washer was made as good as new with a rubber hose

Repairing a Washer

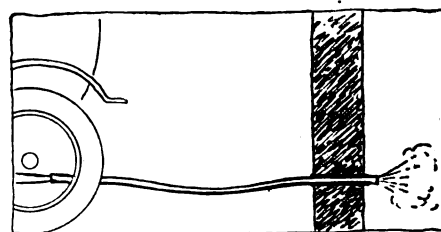
(No. 390)

The illustration shows how an old broken-down ceiling washer has been made to give better service than it did when it was new by the simple expedient of attaching a rubber hose in proper fashion. Instead of the hose merely running from the end of the washer arm to the floor, it goes back along the washer arm to the center and forms the flexible joint between washer and ceiling. A board stop extends down from the ceiling and prevents the arm from being turned around and around, which would result in twisting the hose to pieces.—A. P. Heyer, Montclair, N. J.

Exhausting the Exhaust

(No. 391)

A flexible pipe should be used to carry the exhaust of the motor out into the air, thus preventing the shop from becoming



(No. 391)

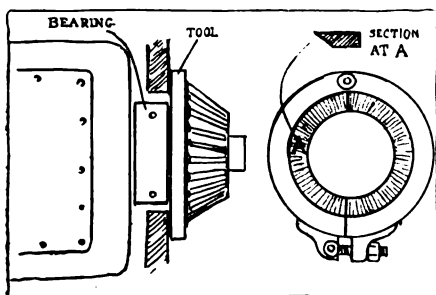
A flexible pipe will conduct exhaust fumes out of the garage

filled with the exhaust fumes. A flexible tube or even an old hose, particularly if it is of large diameter, will do.—Elmer Johnston, City Garage, Portchester, N. Y.

To Remove Bevel Pinions

(No. 392)

With just a bare arbor press it is a difficult matter to remove the bevel pinion from many cars without tearing the whole rear assembly to pieces; especially is this true of cars with gearset at the



(No. 392)

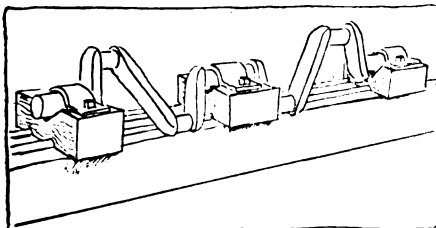
A ring like this will help in removing bevel pinion gears

axle. To overcome this trouble a heavy split ring may be made to fit around the shaft behind the gear and when it is fastened in place its circumference projects out far enough to allow the arbor press to do its work. The ring is strongly hinged at one side and there is a nut on a hinge at the other to allow the ring to be drawn tight.—H. Crymble, Chadick-Delamater Co., New York.

Welding Crankshafts

(No. 393)

An old lathe bed which may be purchased from a junk dealer for the cost of iron makes an excellent apparatus for holding shafts true while they are being



(No. 393)

An old lathe bed can be used in truing crankshafts

These Men Are Proud

of the clever ways in which they have solved their repairshop problems. They worked out these bright ideas and they are glad to have others know about them.

You, Too,

have at least one good idea of the kind and we want to print it on this page over your name.

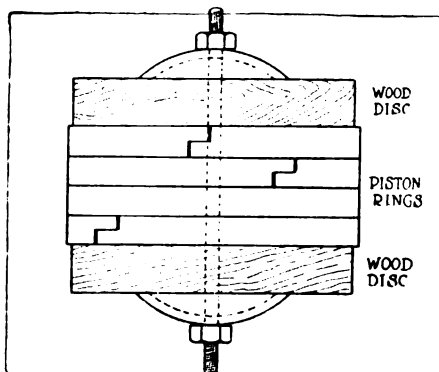
Send along your ideas. Never mind the literary part. That's our job. A post card will do.—The Editor.

welded. A crankshaft, for example, may be placed on V blocks which are set in the ways of the lathe.—A. P. Heyer, Montclair, N. J.

To Avoid Ring Breakage

(No. 395)

The objection to allowing a novice to lap piston rings is that he is likely to push the piston too far into the cylinder, causing it to stick or break a ring or both. To overcome this difficulty, it is advisable to clamp the rings between two wood disks slightly less in diameter than the cylinder. The rings are arranged between the disks, a rod is slipped through and the nuts at each end tightened. A handle on one end of the rod is used for the lapping process.—F. W. Gear, Forty-ninth Street Garage, New York.



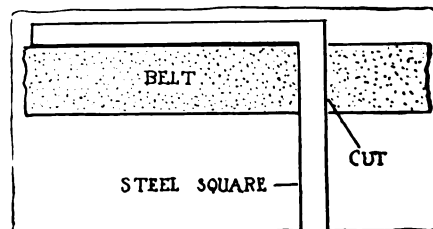
(No. 395)

To avoid ring breakage the rings can be clamped together when lapped

Cutting Belts Straight

(No. 396)

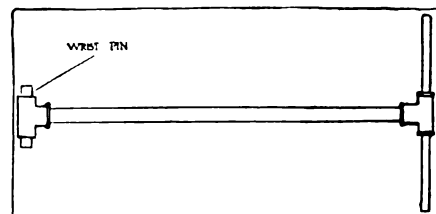
The shortening of a line shafting belt demands that care be exercised in cutting out the length. The cut must be



(No. 396)

In a cutting belt it is essential that the cut be perfectly square

at right angles to the length of the belt or the belt will run off to one side on the pulleys and will eventually ruin itself by this distortion. Hence it is essential to use a try square to make sure that the cut is true.—Elmer Johnston, City Garage, Portchester, N. Y.



(No. 397)

With this tool a piston can be lapped without removing the cylinder block

Piston Lapping Tool

(No. 397)

When it is desirable to lap a piston of a detachable-head motor without removing the cylinder casting, the tool shown is a time-saver. It is made of ordinary ½-inch pipe, a T at the lower end slipping over the wristpin of the piston. The wristpin used in lapping should be made of fiber, as a metal one is likely to score the cylinders. Ground glass and crocus mixed in equal parts is used at the finish and ordinary valve grinding compound at the start.—Wm. McIlvrid, Colt-Stratton Co., New York.

Gasoline Call Button

(No. 394)

The sign on the pump says: "For gasoline, press button." There is a bell in the repairshop at the back of the garage. Inside the front door is a switch, which is thrown in, connecting the button and bell, in case the proprietor must leave the office and go to the shop.—D. W. Roderick, Wells Garage, Wells, Minn.



(No. 394)

Customers are not kept waiting for gasoline. If the proprietor must leave the front of the garage he connects the button with a horn in the repairshop

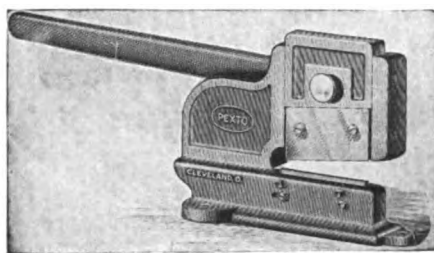


ACCESSORIES & SUPPLIES

BRAKE LINING CUTTER

Peck, Stow & Wilcox, Cleveland.
PRICE, complete, \$10; extra lower blade, 90 cents; upper blade, \$1.60.

This machine is intended for garage use exclusively, weighs 17 lbs. and will cut brake lining as heavy as $\frac{3}{8}$ x 3 in. with one operation of the lever. Ease of operation has been accomplished by using an eccentric knife of special design. In addition to handling brake lining the tool will cut other composition fabrics and also leather, canvas and specially prepared beltings. The tool is 18 in. long.

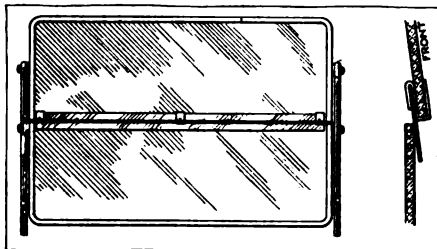


P. S. & W. garage brake lining cutter

CLEAR VIEW RAIN GUARD

Clear View Rain Guard Co., 205 West Lombard street, Baltimore. PRICE, \$1.

This is a flexible transparent strip



Clear View rain guard which keeps out the weather

which is clipped to the upper windshield glass and closes the opening between the two halves of the windshield. It is intended to keep out rain and wind and can be put on or detached quickly. It will fit all windshields.

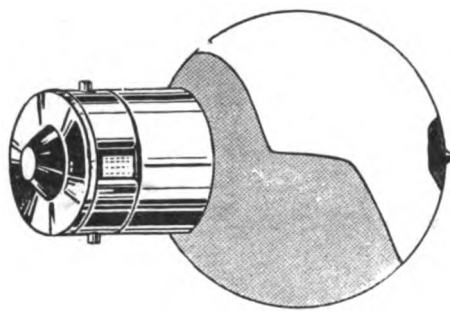
MAC KNO-GLARE BULB

A. Hall Berry, New York.

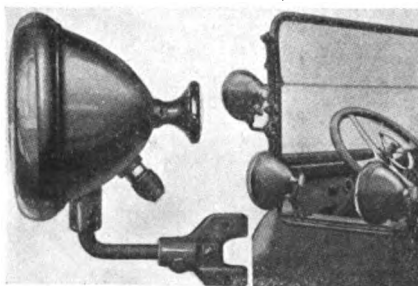
The feature of this bulb is that it is not necessary to change the socket position in order to make the bulb effective. The bulb is frosted on one side so that the glare of the light is prevented, and its correct operation requires that the frosted portion be at the bottom; this is easily accomplished by the special construction of the base of the lamp which allows it to be rotated. The lamp is made in all candlepowers and voltages and in both single- and double-contact bases.

INDIANA SPOT LIGHT

Indiana Lamp Co., Connersville, Ind.
PRICE, including 6-volt 15 candlepower



Mac Kno-Glare bulb with rotating base



Indiana spot light, showing three positions

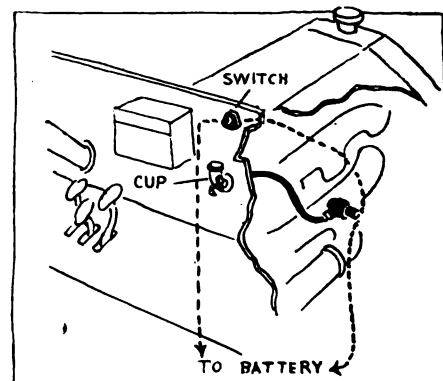
bulb, \$6; 21 candlepower nitrogen bulb, 25 cents extra.

This windshield spot light is equipped with a swivel support, is $6\frac{1}{2}$ in. in diameter and is fitted with a diminishing mirror on the back. The reflector is parabolic and silver plated. The switch is contained in the handle and the lamp is finished in black japan with nickel trim. The bracket permits attachment in a number of positions, including on the windshield, on the top of the door and to the side of the body.

IECO MANIFOLD PLUG

Interstate Electric Co., New Orleans.
PRICE, \$5.

This device is a combined mixture heater and primer which is placed in the



Ieco manifold heating and priming plug

manifold. Heat is supplied by electricity from the battery. Through the center of the plug is a hole which connects with a priming cup on the dash so that gasoline may be injected directly into the manifold.

GRIFFIN DOOR HOLDER

The Griffin Mfg. Co., Erie, Pa. PRICE, \$1.50 to \$3, depending on finish.

This garage door holder is made of wrought steel in one size and will hold any average door open. When the door is opened the bar catches in a notch and holds it securely. A chain pull releases the holder. The length is 32 in. and the weight 6 lbs.



Griffin garage door holder

Simplified System

Page 5

COMBINATION TIRES

Combination Rubber Mfg. Co., Bloomfield, N. J.

These tires are offered with plain tread and two styles of non-skid tread, both with depressed marking. There are seven layers of fabric and, in addition, a double layer of fabric protecting the cushion strip. The tread is made of black rubber and there is a specially hand-constructed bead which is said to be proof against rim-cutting or coming off the rim. Some of the list prices follow:

Size	Plain tread	Hold-on tread
30 x 3	\$9.85	\$11.55
30 x 3½	12.85	14.75
34 x 4	21.45	24.65
36 x 4½	30.30	35.65
37 x 5	35.30	43.55

U. S. E. SHOCK ELIMINATOR

Universal Shock Eliminator, Inc., New York. PRICES, front pair, including bumper, \$60; rear pair, \$50; rear pair underslung type, \$40; small car equipment, \$80.

The front system consists of a combined shock eliminator and bumper and is attached between the frame and springs. In a casing are assembled spiral springs with a trunnion ring between them to which is attached the main connecting rod. As this connecting rod is attached at one end to the shock absorber and at the other to the spring of the car, it transmits shocks from the car spring to the absorber springs. The bumper is connected with the spiral springs so that they absorb shocks received by the bumper.

GASCO FUEL ECONOMIZER

The Gasket Supply Co., Philadelphia. PRICE, \$1 to \$1.50, according to size.

A set of wire gauze screens is placed in the intake pipe at the junction of the carburetor and manifold, in the manner of a gasket. The screen is designed to break up solid particles of fuel. The gauze also prevents the passage of flame down the carburetor in case of a backfire.

KIMBALL SKID CHAIN

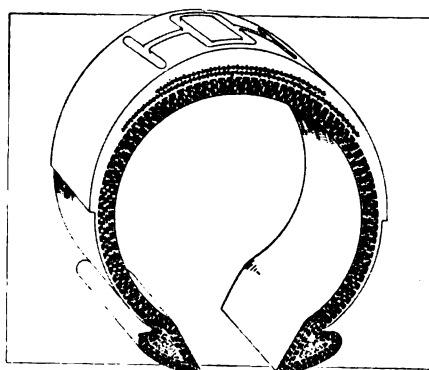
Kimball Tire Case Co., Council Bluffs, Ia.

Six clasps, each of which encircles the tire, are required per wheel. They are locked by a cam device and when in place press into the rubber and stick to it. The clasps are made of flat steel ⅝ in. thick with a tread plate 3 in. wide and links 1¼ in. wide. A strip of leather prevents the marring of the varnish on the felloe. One or more of the clasps may also be used as a blowout patch.

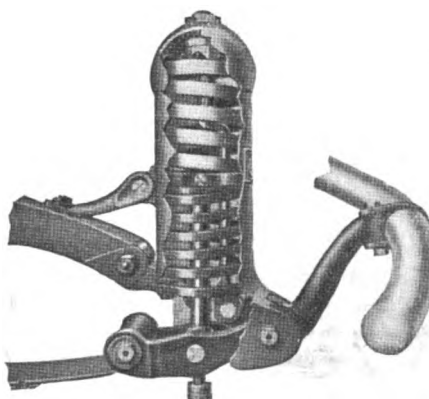
WOOD'S EVERLOC PATCH

W. C. Wood, Minneapolis, Minn. PRICE, \$1; extra heavy, \$1.50.

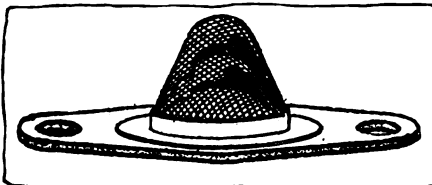
Blowouts and punctures may be permanently repaired with equal facility, it



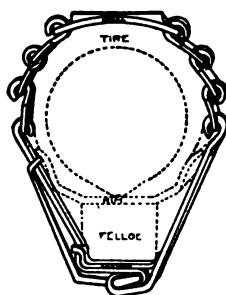
Combination Rubber Co.'s depressed non-skid



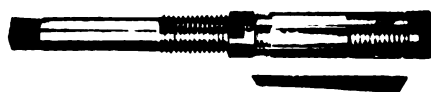
U. S. E. combined shock eliminator and bumper



Gasco fuel economizer for intake manifold



Kimball cam-locked non-skid chain



Carter detector to locate defective plugs

is said. The patch is applied with cement and no heat is required. The material comes in sheets, 6 x 18 in., and may be cut to any size. One sheet will repair 100 ordinary cuts or 250 nail punctures. A heavier patch for casing repairs sells for \$1.50.

MOTOR-AID

Motor-Aid Co., 105 West Monroe street, Chicago. PRICE, \$30.

A fan wheel with a heavy flywheel rim is installed in the exhaust line so that the gases impinge upon the blades of the fan and cause it to rotate rapidly. The strong exhaust impulses give the wheel a high rotative speed and this is maintained by the flywheel so that the fan acts as an exhaustor between impulses, creating a partial vacuum in the exhaust pipe and assisting in clearing out the products of combustion.

L. & L. HANDY TIRE TOOL

John C. Hoof & Co., Chicago. PRICE, \$2.

With this tool any type of split rim may be compressed or expanded. The tool is adjustable, and depending on whether the hooks at each end are placed inside or outside of the rim, compressing or expanding may be done.

TOMARIN LICENSE HOLDER

Tomarin Auto Radiator Repair Co., Cleveland. PRICE, 75 cents retail. DEALERS, \$4.50 per doz. and \$30 per 100.

The Tomarin license holder is designed for Fords only and consists of a steel bar that bolts to the radiator support at each side.

APCO VALVE GRINDER

Auto Parts Co., Providence. PRICE, 20 cents.

Ford valves, particularly those in the fourth cylinder, may be ground without difficulty with this tool because it has a universal joint which allows the spindle to be held at an angle. It is finished in black enamel.

INLAND ONE-PIECE PISTON RING

Inland Machine Works, St. Louis, Mo.

This ring is of spiral form and is concentric; the tapered ends of the spiral are claimed to give the same effect as the eccentric form. Joints are staggered and cannot come together. Equal pressure at all points and ample elasticity are features. Surfaces are finished by grinding after heat treatment.

CARTER SPARK DETECTOR

Carter Spark Plug Detector Co., Detroit, Mich. PRICE, \$1.50.

This device is for locating a defective spark plug. The plugs are removed from the motor one at a time while the motor operates on the remaining cylinders. The detector is placed against the metal of the plug below the porcelain and the indicator immediately shows whether the plug is sparking or not.

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The Motor World Simplified System of Accounting

Instalment No. 4

THIS week's instalment of Motor World's system articles takes up the recording of expenses and cash paid. This discussion of Form 2 is one of the most important parts of the system stories. No matter what the income is, the business is not profitable unless the expenses are proportionately less.

One failing with many garagemen is that they do not see the danger signal until too late. They do not actually know what their expenses are; they overlook many items that should be carried as expense. They delude themselves into believing that the business or some department of the business—repairshop, for instance—is making money, when, as a matter of fact, it is losing, and the first real jolt comes when they discover that their dream of profits has become a nightmare of loss.

The Roots of Your Business

THE roots of your business are your points of contact with your customers. Some of your points of most frequent contact are your employees. In this case, is your business likely to grow?

Do you know the reception customers are getting at the hands of men in your place of business? Especially if you have a large establishment, are you in as close touch as you should be with this important situation? There is one national organization which seems

to be achieving great success, yet some of its branches do not accord even courteous treatment to those who call. If this is not remedied it may eventually check the growth of this now thriving corporation.

How about your own organization?

Think

THE motor car industry already is heavily taxed and if the present proposed program is carried through, it will have a still heavier burden to carry. Consider the following facts:

1. There is now a tax for registration of every motor vehicle.
2. In some states there is a personal property tax in addition.
3. Also in some states there is an additional wheel tax.
4. It is now proposed to tax fuel.
5. It is now proposed to tax horsepower.
6. It is now proposed to tax pig iron.
7. It is now proposed to tax fabricated steel.

Thus, we will have four taxes to pay before we own our car, and after it comes into our possession we will have to pay three more to pay for the privilege of using it.

This is a condition which requires concerted action: it is work for the powerful dealer associations to take up. Conditions similar to these have not been passed over lightly in the past; and they must not be passed over lightly now. The time to act is now, not after laws have been made; for it is far easier to prevent the passage of a measure than it is to have that measure annulled at a later date.

Going Up?

COMMODITY prices are rising and it is altogether logical to assume from this that the rise will be reflected in the prices of both cars and accessories, in the not far distant future.

Although the price of the average five-passenger 1916 car will be one-fifth lower than the average price of the 1915 car, based on statistics already available, more than one company has let it be known that higher prices after January 1 are not only possible but highly probable; at least one company is now selling cars for Spring delivery with a clause in the contract which states that the price is subject to rise after the opening of the new year.

That this is in the natural course of events is revealed by even a casual study of the market reports. For example, aluminum ingots which a year ago this week were selling for 16-18 cents per lb. have now gone up to 45-50 cents; Bessemer steel has risen from \$20 a ton to \$29; open hearth steel from \$20 a ton to \$30; copper has increased from 14 1-5 cents per lb. to 19 1/4 cents; and tin, which last year sold for \$36.88 per 100 lbs., is now up to \$38. These facts constitute a barometer of market conditions.

All Should Boost for Harmony in the Trade

Garage man, Dealer and Manufacturer
Should Be Best of Friends, Says
President Bland of the
A. G. of A.

Editor Motor World:

In the last few months the Garage Owners Associations of several states in the Union have appointed committees to wait upon the manufacturers or their representatives in the different cities for the purpose of bringing about a better feeling between the manufacturer and the garage owners.

This is one of the most important moves possible for the garage owner to make at this time for the reason that there must be absolute harmony, good fellowship and cooperation between these two branches of the industry, otherwise the entire industry is going to suffer and the garage owner is going to be a loser.

We have had an example of this situation in Chicago in the last year, and I am sorry to say that these conditions were allowed to continue as long as they have without taking steps to bring about a better feeling.

The situation has been somewhat cleared up in the electric field in Chicago and suburbs, and we believe that through the influences of the Electric Vehicle Association of America a satisfactory understanding will be arrived at and that the electric garage owner will be brought



F. B. HOLMES,
Kissel, Brookline, Mass.

District Representatives

XXXVII

This is No. 37 in a series of pictures of the District Representatives of all the more prominent car manufacturers. These are the men with whom the dealers throughout the country come in closest contact and who form an important link in the chain that binds the maker to the user.

F. B. Holmes, treasurer of the Kissel Kar New England branch, 940 Commonwealth avenue, Brookline, Mass., has been connected with the motor car industry for about two years. Formerly he was engaged in the manufacture of shoes in Chelsea, Mass., being treasurer of the Field, Holmes Co. The company for which he is now treasurer is Kissel distributor for the whole of New England.

back to the position he was in a year ago, when the manufacturers' representative and the garage owner were working harmoniously together. Both of these interests are identical and unless one has the cooperation of the other both must lose.

A little over a year ago the manufacturers' representatives in Chicago were doing everything in their power to assist the garage owner. I can well remember the stand that was taken by Messrs. Whipple, Higginbotham, Temple, Buck, Reed, Barnham and others, at our meetings, where they educated the

garage owner up to the point of showing him that on account of his overhead he could not maintain the standard of service required by electric car owners for \$35 per month, and these men night after night stiffened the spines of the garage owner and forced him in their arguments to increase the price to a living wage of \$40 per month.

These men went so far as to show the car owner that we could not maintain our overhead as garage owners and give the service they required and take care of electric cars on a \$35 rate, and it was only through their influence and cooperation that we were enabled at that time to secure \$40 per month.

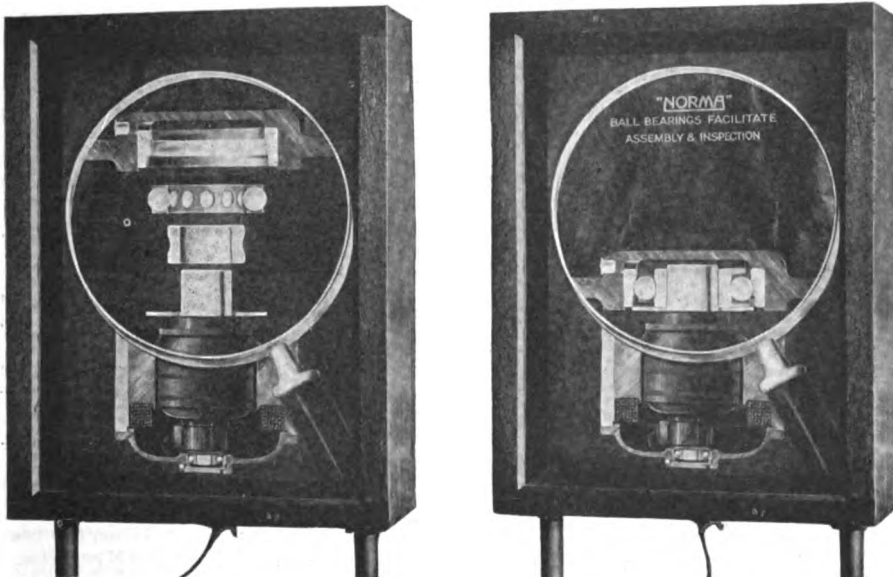
Mr. Whipple and Mr. Higginbotham and some of the others went out of their way considerably to help us at that time and too much praise or credit cannot be given these men for the work they did.

We now feel that we are about to return to those good old days, where harmony and good fellowship prevailed, and that it will not be long until that same good feeling which existed at that time will prevail again. I am perfectly well satisfied that the garage owner is anxious to cooperate with the manufacturer and I really believe that the manufacturer is ready and willing at this time not only to cooperate with the garage owner but to assist him in securing his just rights.

Every garage owner throughout the country should put his shoulder to the wheel and do everything within his power to bring about a better feeling between these two allied interests, and I sincerely hope that every garage owner will consider himself a committee of one to do all in his power toward this much-desired end.

Robert Bland, President,
Associated Garages of America.

Norma Shows Ease of Assembling Its Bearings



To emphasize its sales point of ease of assembly and disassembly, the Norma Co. of America, New York city, has perfected the display fixture that is shown above. The magnifying glass and the parts below it are a drawing. That part inside the glass consists of a sheet-steel reproduction of the parts of a bearing. An electrical mechanism causes the parts to start from an assembled state (right) and to move upward into the disassembled form shown in the picture at the left. The process of assembly and disassembly is kept up continuously

The RETAIL NEWS

SOUTHWEST

Glen Jackson, Sterling, Kan., has leased the repairshop in the Toeves & Heaston Garage on South Main street, McPherson, and will conduct a repair business.

J. W. Nusbaum & Co., Peabody, Kan., Ford dealer, is asking bids on a new building, to be composed of concrete. This will take the place of the frame structure now housing the offices and shops of the Nusbaum company.

J. A. Allen, Harrisonville, Mo., has opened a vulcanizing plant and tire repairshop on East Mechanic street.

M. Hixon, Great Bend, Kan., has opened a service station for the repair of electric storage batteries at 1308 Kansas avenue.

C. W. Leftwich & Son, Sedalia, Mo., have opened a repairshop in connection with the blacksmith and wagon building business they conduct on West Second street.

Earl Davidson, Memphis, Mo., has closed out his repairshop in the Hoover building and has moved to the country.

Everett Smith, Eagleville, Mo., has purchased the Dale Garage.

Akins & Freeman, Humansville, Mo., have opened a garage near the National Hotel.

The Ozark Trail Garage, Baxter Springs, Kan., opened up last week.

J. W. Farmer, Coats, Kan., has purchased the garage formerly owned by J. E. Frazier and will conduct his Ford agency at that place.

Edward Bechetel, Elkhart, Kan., who just arrived here from Canada, and M. Thompson, Rolla, have formed a partnership and have begun the erection of Elkhart's second garage. It will be known as the Ford Garage and will be 50 x 100.

E. W. Mollenkamp, Lexington, Mo., Buick dealer, has begun the erection of a new \$5,000 garage. The new building will be of brick, with a concrete floor, and will be 70 ft. wide and 82 ft. long.

M. Woods, Mt. Grove, Mo., formerly of Mammoth Spring, Ark., will open a new garage in Mountain Grove at Second street and Maple avenue.

Will Don Carlos, Leeton, Mo., has taken the management of the Cooperative Garage, in Leeton.

Bright Walker, Lathrop, Mo., proprietor of a garage on Center street, has commenced the erection of a new garage which will be of stucco, 34 x 88.

Will Stutzman and Clyde Fresh, El Dorado, Kan., have begun an automobile livery service and have established headquarters at the El Dorado Garage, 126-128 North Main street.

Harrison Smith, Oklahoma City, Okla., formerly of the Burnell-Smith Supply Co., has established a new store at 31 West Main street, to be known as the Harrison Smith Co. The firm will do a jobbing business only.

W. L. Darrin, Parker, Kan., has leased the Wineland Garage on Main street and has reopened it.

Roy Sheeley, Richmond, Mo., has bought the Camden Avenue Garage and plumbing business. Charles F. Hudgins, former owner, exchanged his interest in this business for a 114-acre farm.

M. Kilewer, Inman, Kan., owner of the Kilewer Garage, is about to open a new building.

E. J. Roberts, Westmoreland, Kan., has taken over the Westmoreland Garage, formerly owned by Huckstadt Bros. & Ballinger, and will take charge of the place in several weeks.

L. V. Mills, Chanute, Kan., will open a garage at 112 North Lincoln street under the name Independent Auto Co.

G. H. Gibson, H. M. Adams and H. H. Nichols, Sedalia, Mo., have opened a new garage at Fourth and Lamine streets. This company, which will be managed by Nichols, Overland dealer, formerly had the garage known as the Times Square Auto Co., on South Ohio street.

E. E. Lautzenhiser, Phoenix, Ariz., who was for many years employed in the Diamond and Firestone factories, has opened a vulcanizing plant at 112 North Central avenue.

Richard J. Hill, Phoenix, Ariz., has secured the Arizona agency for the Locomobile and is shortly to open a garage. In the meantime he has an office in the Noll building.

Henry Eiers, Willcox, Ariz., has purchased an interest in the Western Motor Supply Co., El Paso, and has moved to that city.

The Motor Car Supply Co., El Paso, Tex., has opened for business at North El Paso and Franklin streets.

The Goodyear Tire & Rubber Co. has opened a branch in Phoenix, Ariz. Temporary quarters have been secured at 133 North Central avenue. H. T. Roseland, formerly of Syracuse, N. Y., is manager.

William H. Smith, St. Louis, has opened a shop at 306 Leonard avenue equipped with special machinery to wind armatures and to do special automobile electrical work.

The Borbein Auto Co., St. Louis, has just erected a machine shop and repairshop at 2109 North Ninth street.

The Harrington-Roebe Auto Repair Co., 717 North Grand avenue, St. Louis, has been designated an official Hupmobile service station. The garage will be open day and night. J. C. Toebe, formerly with the Weber Implement & Auto Co., is in charge.

The Carpenter Auto Co., St. Louis, has bought the business of the Schneider Motor Co., Missouri avenue and Pestalozzi street, where it will continue to handle the Elco car and accessories and do repairing.

The Ilseing Motor Car Co., Dallas, has been formed by Andrew G. Ilseing, Fort Worth, and W. H. Lester, Dallas. They will handle the Monroe and Grant.

The Jeffery Motor Car Co. has established a branch in Dallas with T. J. Blakeney in charge.

The Ray Rose Automobile Co., Dallas, has taken the agency for the Marion in addition to the Saxon. The company is planning to lease larger quarters.

The Westcott Motor Sales Co., St. Louis, has closed a lease for the garage of the former Cherokee Automobile Co., 3334 South Jefferson avenue. This building, with 8,000 sq. ft. of floor space, will be used as a service station for the Westcott.

The Times Square Automobile Co., New York, has opened a branch in Kansas City.

The El Paso Rubber Co., El Paso, Tex., has moved into new quarters at 205 West San Antonio street.

W. R. Edison, El Paso, Tex., recently purchased the Mission Garage and has relin-

quished the agencies for the Chevrolet and Cole and Ajax tires. The Chevrolet is to be handled in El Paso by the Myers Motor Co., with Guy Watts as sales manager.

H. C. Swearingen, El Paso, Tex., has left the employ of the Quick Tire Service and has opened four gasoline service stations under the name of Red Ball Gasoline & Auto Supply Co. A small stock of tires and accessories is carried at each station.

The Dallas Chalmers Motor Co., Dallas, has been organized, with the following officers: President, J. H. Connell; vice-president, W. B. Connell; secretary, J. S. Connell. The company handles the Chalmers. Merrill Frink, Fairview, Kan., will open a garage.

Ernest Wilmoth, Colony, Kan., is building a garage.

Claude Holverstott, Lathrop, Mo., has purchased the Day and Night Garage from E. A. Green.

M. L. Harris, Blackwell, Mo., has purchased the Nelson Garage on East Blackwell avenue from Robert Nelson. Harris is Overland dealer.

Thomas Markell, Monett, Mo., is erecting a store and garage, costing \$10,000.

C. R. Huston, St. Louis, representative of the Butler Mfg. Co., Kansas City, maker of galvanized iron garages, has opened a salesroom at 2629 Locust street.

William McBride, West Plaines, Mo., has purchased the Maxwell agency and garage from A. M. Reames.

Sunnyside Garage is the name chosen for a new business opened in Sedalia, Mo., by Nichols, Gibbons & Adams.

Johnson & Moore, Floresville, Tex., will build a garage, 35 x 92.

The Chase Motor Truck Co. of Missouri, Kansas City, has been formed by William H. Wallace, Jr., and will handle that truck. It has located at 411-15 Wyandotte street and succeeds Moss & Metcalf.

McArthur Bros., Phoenix, Ariz., has opened a branch in Tucson, Ariz., at 24 North Stone avenue. They handle the Dodge Bros., Jeffery and Packard.

The Grand Centre Motor Car Co., St. Joseph, Mo., has redecorated its salesroom and installed a new lighting system.

The Adams Auto & Supply Co., Chillicothe, Mo., has let the contract for a three-story garage, 70 x 112. The estimated cost is \$50,000.

The Webb Auto Co., Temple, Tex., has opened a garage in a new building on South Third street.

Stokes Griffin, Jefferson City, Mo., has opened a new garage and motor livery.

The Fisher & Son Garage, Frankfort, Kan., has been sold to J. F. Clema. He handles the Maxwell.

William H. Smythe, St. Louis, has opened an automobile electrical repairshop at 306 Leonard avenue.

F. C. Buckhalter, Wichita, has purchased an interest in the Anderson Tire & Rubber Co., 121 North Lawrence street.

The John Berry Auto Repair Co., Vandeventer avenue and Locust street, St. Louis, has installed a plant for repairing tires and tubes.

The Megue Rubber Co., St. Louis, has been appointed distributor in eastern Missouri and

Simplified System

Page 5

southern Illinois of Mohawk tires. Twenty-four subdealers have been established in St. Louis and ten in surrounding towns.

Richard J. Ganahl, St. Louis, formerly with Anselm-Ganahl Motor Car Co., has opened a repairshop and accessory store at 3851 Morgan street.

E. W. Mollenkamp, Lexington, Mo., has started work on a new garage. The building is to be 70 x 80, of brick and concrete, and fireproof.

Rolla Pearce, Olathe, Kan., has opened a new garage in Gardner, Kan.

Clifford & Delahunt, Olathe, Kan., garage, tinners and plumbers, has dissolved partnership and Griffith will now have complete control of the garage and plumbing business. Delahunt has moved his tinning business to another location.

The Johnson Automobile Co., 3667 Olive street, St. Louis, has been appointed distributor of H. & D. shock absorbers in Missouri and southern Illinois.

PACIFIC COAST

Wright & McGinnis, Hollywood, Cal., has opened a repairshop at Hollywood and Ca-huenga avenues.

Gird & Sutton, Hollywood, Cal., proprietors of the East Hollywood Garage, have put in a large supply of tires and are enlarging their entire accessory stock. The floor space of the garage was also enlarged a short time ago.

Landers & Larson, owners of the Hollywood Motor Supply Co., Hollywood, Cal., will double their floor space within the next few weeks and add to their \$15,000 accessory stock accordingly.

Nelson & Ramgren, Lankershim, Cal., owners of the Lankershim Garage, Weddington avenue and Lankershim boulevard, have installed a large stock of tires and have added a machine shop equipment.

W. H. Hahn, Hollywood, Cal., has moved into a new brick garage building at McCaddon place and Hollywood boulevard.

The General Ignition Works, Los Angeles, has moved to 1220 South Grand avenue.

The Allen Motor Co., Los Angeles, has taken a lease on a new garage building at 951 South Flower street.

The Double Strength Reliner Co., Los Angeles, has opened a plant at 209 West Sixteenth street.

Earl Fulwiler, Santa Paula, Cal., has purchased the Ford Garage from Frank Dalton and is making improvements.

C. L. Cliff and G. A. McFarland, Tacoma, have taken the agency for the Oldsmobile and established quarters at 920 Tacoma avenue.

Frank J. Dupuy, Los Angeles, has opened a piston ring store at 1245 South Figueroa street.

Hamilton & Nelson, Los Angeles, have opened a supply store and repairshop at 135 East Jefferson street.

R. A. Benson and R. P. Mackey, Los Angeles, have purchased the Abbetta Garage, 126 East Jefferson street.

The Figueroa Auto Supply Co., Los Angeles, has moved into the garage building at 1243 South Figueroa street.

F. C. Thomas, Upland, Cal., formerly in the garage business in Pomona, Cal., has purchased the garage business of the Upland Auto Co., formerly owned by Niles Anderson.

Walter Hersey and Merrill Aikins, Santa Paula, Cal., have purchased the Mission Garage.

Smith Bros., Los Angeles, have leased the garage formerly occupied by them on South Olive street, between Seventh and Eighth

streets, and from this place will do only a used car business, confining the business of the Paige and Premier to their large building on South Figueroa street.

The Pacific Kissel Kar Branch, San Francisco and Los Angeles, has taken a lease on quarters in the San Diego Hotel building, San Diego, and will operate a branch in that city.

George R. Bentel, Los Angeles, has been made Mercer distributor for the entire Pacific slope, Charles A. Mackey having retired from the firm of Bentel & Mackey, which formerly handled the Mercer. Bentel's territory now includes everything west of Denver. The main offices of the agency will remain in Los Angeles.

The Storage Battery Co., Portland, Ore., has been purchased by C. E. Fehr and George R. Herd from William Christman and C. A. Bankhead. Under the new management this firm will be Oregon distributor of Exide batteries.

J. H. Cole and Tom Spergen, Tacoma, have taken over the Commercial Garage and will conduct a repairshop and garage.

H. P. and P. J. Hansen, Tacoma, have opened a repairshop at 1220 Tacoma avenue. They will carry accessories and tires.

Charles Frisell, Seattle, will erect a garage on Pike street.

H. E. De Peel, Portland, Ore., will build and operate a filling station and repairshop at 2049 East Stark street; it will cost \$4,000.

J. C. Gerner, Everett, Wash., has let the contract for a garage, 100 x 120, at Pacific and Rucker avenues.

The Cole-Pacific Motor Co., San Francisco, has been formed by W. B. Cochran and A. B. Emanuel. The Cole will be distributed. Headquarters will be those formerly occupied by the Rauch & Lang.

The J. W. Leavitt Co., San Francisco, Overland distributor on the Coast, is to spend \$900,000 within the next two months on its branches. The buildings to be erected, with their locations and costs, are: San Francisco, Van Ness avenue and Bush street, \$400,000; Los Angeles, \$250,000; Pasadena, \$50,000; Oakland, \$60,000; Sacramento, \$100,000. Other buildings have recently been completed in Seattle and Portland. There are other branches in San Diego and Fresno.

EAST

W. W. Thompson, Ellwood City, Pa., is building a two-story garage and repairshop.

John D. Cutter, Thomas H. Flowers and Clark J. Webster, Erie, Pa., will convert the Wolfe Family Theater into a garage.

C. B. Kuhns, Natrona, Pa., will build a two-story brick garage, 52 x 130, on River avenue.

Monroe Stauffer, Pen Argyl, Pa., will build a garage.

The Scottsdale Automobile Co., Scottsdale, Pa., has taken possession of a new garage, 80 x 100, at Hickory and Brooks streets.

Adolph F. Woelper, Newark, N. J., has secured plans for a garage to be erected on Third street.

The Motor Truck & Auto Co., Philadelphia, has been formed to handle the Lippard-Stewart. It has located at 1414 Wood street.

The Fort McIntosh Garage, Beaver, Pa., has been sold by Thomas Pottinger to the Beaver Garage & Supply Co. It will be improved and operated.

Muskowitz & Hervach, Philadelphia, dealers in sporting goods at 430 Market street, have added an automobile accessory department.

Raymond Hawley, Philadelphia, has taken over the National agency with headquarters

in the Metropolitan building. W. L. Connor is in charge of the sales and service departments.

The Griffith Garage, Meyersdale, Pa., is being erected.

Charles R. Culver, Springfield, Mass., has purchased an interest in the Stoddard Motor Car Co., Pierce-Arrow dealer in that city. He is its sales manager.

The Ellis Motor Car Co., Newark, N. J., plans to erect a one-story brick garage at 396-400 New street, to cost \$9,000.

The International Motor Co., Baltimore, has let the contract for a one-story garage, 60 x 150.

F. M. Clark, Washington, D. C., has secured plans for a two-story garage, 51 x 92, to stand on New Jersey avenue. It will cost \$10,000.

Wallace F. Wilcox, Providence, will build a one-story garage, 45 x 108, at Elmwood avenue and Warren street.

The West Branch Motor Car Co., Williamsport, Pa., has purchased the Fourney Skating Palace on Front street and will convert it into a fireproof garage of one floor and with no posts. It will be 50 x 230 with a wing of 15 x 104. It will accommodate 150 cars. The company handles the Reo, Saxon and National. William C. Moore is manager.

The Brooklyn Auto Service Co., Brooklyn, N. Y., of which Charles A. Potbury is proprietor, opened its new two-story garage at 1203 Atlantic avenue, Nov. 26, with a reception attended by more than 350 persons. There was a 40-piece brass band and a cabaret show. Following a dance held on the garage floor, a luncheon was served on the upper floor, where the paint shop will be located. The building is 90 x 100 and is thoroughly modern.

Hexamer's Garage, 213-221 Hudson street, Hoboken, N. J., containing about 75 automobiles, burned Tuesday with a loss estimated at \$250,000.

William Hunter, Albany, N. Y., is erecting a two-story garage at Morris and Robin streets, which will be two stories in height and have three entrances.

Commerford & Dolan, Albany, N. Y., have purchased property at the rear of the State Capitol and are having plans drawn for a big garage to be erected at Congress street and Capitol place. It is to be fireproof and two stories in height. It will face the Capitol and will provide a place for the storage of cars that are now parked during business hours all about the Capitol.

Mark J. McCann, Lowell, Mass., proprietor of the City Hall Garage, has established a motor livery business.

C. W. Honeywell's garage, Plymouth, Pa., was recently destroyed by a fire which ruined 12 automobiles; loss, \$15,000.

The Jackson Automobile Co., 822 North Broad street, Philadelphia, has moved to larger quarters at 933 North Broad street.

Dr. Theodore Cook, Baltimore, has asked for a permit for a garage at Maryland avenue and 27th street, to be one story, 150 x 150.

The Monumental Motor Car Co., Baltimore, Kissel dealer, with temporary quarters at Howard and Franklin street, has opened a service station at 504 St. Paul street. The new quarters, Maryland and Mt. Royal avenues, will not be ready for occupancy until spring.

The Empire Tire & Rubber Co., Boston, has moved to new salesrooms at 179 Massachusetts avenue.

A. H. P. Sechrist, York, Pa., has erected a brick fireproof garage and repairshop at the rear of his residence, East College avenue and Court alley.

The Prest-O-Lite Branch, Boston, has opened an enlarged battery and charging station at 16 Columbus avenue.

The Storage Battery Service Co., Inc., Baltimore, has opened for business at 1014 Morton street. It represents the Ever-Ready battery. C. D. Boyle is president and general manager and W. D. Fuery is sales manager.

Harper F. Myers, 201 East Philadelphia street, York, Pa., conducting a vulcanizing plant and dealing in supplies and accessories, has purchased the Myer Miller building, 386-388 West Market street. The property, on the city's main street, will be remodeled and occupied by Myers by January 1. The name will be changed to the H. F. Myers Auto Supply & Vulcanizing Store. Myers has the agency for Goodyear, Hartford, Diamond and United States tires.

MIDDLE WEST

The Buell Motor Sales Co., Jackson, distributor of the Buick, expects its new salesrooms at 226 West Cortland street to be ready by Dec. 15. The event will be made the occasion of a special attractive decoration of the rooms and a general invitation to Buick owners and prospects to visit the new quarters.

Rovtar Bros., Chicago, suppliers at 2230 South Wood street, are about to erect a two-story machine shop, 25 x 35.

The Stutz Motor Co., Cleveland, has opened up at 1907 East 13th street. H. S. Thomas is manager.

A. E. Hardin, Lorain, O., is building a garage. He handles the Empire, Regal, Allen and Lozier.

Charles C. Respass, Cincinnati, will erect a garage on Fifth street, between Scott and Madison avenues, extending through to Fourth street. His son will operate it.

The Hudson-Stuyvesant Motor Co., Cleveland, has leased a site at 2012 Euclid avenue and will erect a four-story building, to cost \$75,000.

Whitney C. James, Macomb, Ill., has opened new salesrooms at South Randolph and Washington streets. He handles the Chandler and Dodge Bros.

The Peerless Auto Machine Co., Cleveland, will construct an addition to its plant at 1962 West 77th street. It will cost \$3,500.

The Rinxle Co., 626 Diversey parkway, Chicago, will construct a brick garage at 554 Diversey boulevard. The estimated cost is \$35,000.

A. Krider, Montpelier, O., plans to build a two-story garage to cost \$8,000.

J. B. Howard, Indianapolis, will build a garage at Meridian and Tenth avenues. It will cost \$13,000.

The North Burdick Street Garage, Kalamazoo, Mich., has been formed by G. A. Brinkman, proprietor of the Kalamazoo Motor Garage, and by Harry Freye, of the Freye Bros. Garage.

Scammehorn Bros., Kalamazoo, Mich., will enlarge their garage.

George Groff, Shepherd, Mich., is the new owner of the Parmelee Garage.

Lewis Jacobs, Paw Paw, Mich., has sold his interest in the Paw Paw Garage to Duane Pepper.

The Wing Garage, St. Ignace, Mich., conducted by Mayor Wing and his son, Chester, is to be replaced by a modern fireproof structure to accommodate at least 50 cars. It will also have an accessory department.

Fred Hill, Williamston, Mich., is adding a garage to his blacksmith shop.

O. J. Cliffe, Lakeview, Mich., has purchased the garage business of George R. Service.

The Creek Motor Sales Co., Milwaukee, which recently sold its Apperson and Interstate agencies and its other business to the Fowler Motor Sales Co., will build a two-story garage, 50 x 130, in the downtown section and will secure another agency.

The Loveland Co., Detroit, one of the biggest and oldest used car dealers in that city, has purchased for \$250,000 the 180 x 250-ft. property at Woodward and Palmer avenues, upon which its showrooms and garage is located. It is probable that a new building will be erected, which will be in a unique style and arrangement.

G. A. Rasmussen, Greenville, Mich., will open a Ford garage, having become dealer in that car.

W. F. Corrington, Mowqua, Ill., has purchased the L. F. Slick Garage in Clinton, Ill.

F. A. Dunniway, Canton, Ill., has opened a garage at 21-23 East Pine street.

Dolby & Pabst, Huntley, Ill., has been organized and secured the Pabst building for a garage.

NORTHWEST

Hans Roeh, Ringsted, Ia., has bought an interest in the Nelsen Motor Co. of that place and is taking an active part in the business.

Lawrence Finlayson, Breckenridge, Minn., will erect a brick and concrete garage at Sixth street and Minnesota avenue, to cost \$10,000.

The Case Auto Co., Rochester, Minn., is erecting a \$25,000 garage of concrete on West Third street.

John A. Deppa, St. Cloud, Minn., has opened a garage at 214 Sixteenth avenue, North.

McClelland & Fredericks, Judith Gap, Mont., proprietors of the Gap Garage, have taken the Oakland agency.

The Corwin Motor Co., Bismarck, N. D., will erect a storage house, 50 x 75, for new cars.

Macy & Young, Springfield, S. D., have bought the Walter Marvin Garage.

The Power City Auto Co., building, Sioux Falls, S. D., burned.

B. H. Murrison, Balaton, Minn., is fitting a building at Central avenue and Second street for a garage.

Hanson & Askland, Frost, Minn., will erect a garage, 50 x 50, of cement blocks.

Appelquist & Paulson, Fullerton, S. D., have opened a garage.

L. E. Howard and Clifford Horton, Minneapolis, have bought the New Lake Garage, 35 West Lake street.

Oscar Gronlund, Menasha, Minn., has opened a new garage.

Johnson & Elstad, Farmington, Minn., has opened a garage.

Claude Phinney, Hetland, S. D., has bought an interest in the E. A. Boldt Garage.

Edward LaChance, Virginia, Minn., has been made manager of the new garage of H. B. Knudson.

A. Fyall, Ryder, N. D., has opened a garage and repairshop.

The W. H. King Auto Co., Mitchell, S. D., has closed an agency for the Reo car in twenty-one counties.

S. W. Slater, Cedar Falls, Ia., has bought the interest of B. T. Archer in the garage which they have conducted jointly at Third and Washington streets. Archer, who also has been conducting a taxicab line, will discontinue that also.

W. J. Fiala, Lisbon, Ia., will erect a new garage on the route of the Lincoln Highway.

It will be located just east of the opera house.

John Leuz and Thomas Pepler, Iowa City, Ia., will raze the Cooperative Co. building at Burlington and Clinton streets and erect on the site a large garage, which is to be ready for occupancy by spring.

E. A. Cunningham and Homer Stanley, Oskaloosa, Ia., proprietors of the Central Garage, 213-15 South First street, will move to larger quarters at 219-223 First avenue, West.

M. H. F. Sheperd, Oskaloosa, Ia., head of the States Auto Supply Co., will move the business to Des Moines, where it will be located in the Schee building, Fifth street and Court avenue.

The Fitch Co., Oskaloosa, Ia., will establish a wholesale accessory and supply business at 213-215 First street.

H. L. Snakenberg, Sigourney, Ia., has bought the garage of Louie Kracht; the business is now being conducted by Snakenberg and Gus Kracht.

Maurice Hennessey, Manchester, Ia., has bought the interest of his partner, W. T. A. Keyes, in the garage and agency they have been conducting at Manchester.

The Wetmore Automobile Co., Sioux City, Ia., has secured the Cadillac agency. The Cadillac formerly was distributed by the Wyckoff Auto Co., which went into bankruptcy a few weeks ago.

Parkhurst & Lavendar, Webster City, Ia., will enlarge its garage by the addition of a paint shop, 44 x 44, and a story and a half high. It will contain a work room and a finishing room, and the equipment will include compressed air brushes for body work. The new building is to be ready for occupancy January 1.

R. C. Blakely, Creston, Ia., has bought the Independent Garage on Pine street from E. D. Jones and has taken over the agency for the Saxon and Paige. Blakely formerly lived in Greenfield, Ia.

SOUTH

Murray Hogan, Nashville, who has been secretary of the Nashville Manufacturers' exhibit and in charge of the Permanent Manufacturers' Exhibit for several years, has become manager of the Newsum Tire & Vulcanizing Co.'s Nashville store.

The Hamilton Motor Car Co., Chattanooga, distributor of the Hupmobile, is erecting a new service station and salesroom which will cost \$20,000. It will be brick and concrete, 70 x 145, and two stories.

The Anniston Auto Co., Anniston, Ala., will build a new garage, to cost \$2,500. It will be 50 x 70.

MOUNTAIN

Tom Botterill, 1278 Broadway, Denver, Pierce-Arrow, Hudson and Dodge Bros. distributor, is rearranging his office and salesroom to provide more show space for cars on account of closing his separate Dodge salesroom at 1530 Broadway.

Mulnix & Rarle, Denver, Grant distributor, with salesroom at 17 East Colfax avenue, has opened a service station at 1431 Cleveland place, with George Hale, formerly of the Grant factory, in charge.

The M. & M. Garage, 1709 Tremont place, Denver, has been sold by Kemp Middlekauf to O. R. Savage.

Simplified System

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Fifty-four Names Added to National Shows List

**S. J. R. and Lescina Cars Entered—
Society Day Not to Have Double
Admission—Last Minute
Rule Rigid**

NEW YORK, Dec. 13—Six additional car exhibitors and 48 exhibitors of accessories for the National Shows at New York and Chicago were allotted space during the past week, making the list of complete car makers for the New York show 80 and for the Chicago exhibition 86, while the accessories total 307, nearly all of whom will be present at both shows. There will be seven makers of electric cars at each show.

The new car exhibitors are S. J. R. Motor Co., Boston, S. J. R. car; Lescina Auto Co., Newark, N. J., Lescina; both exhibiting at the Palace. At Chicago, Princess Motor Car Co., Detroit; Walker Motor Vehicle Co., Chicago, and Gadabout Co., New York city, are to be added, while the Champion Auto Co., Chicago, will exhibit the Champion car at both shows.

Society Day at the New York show is to be Wednesday, January 5, but contrary to the custom of previous years, no double admission will be charged. The show will open at 2 p. m. Friday, December 31, and at 10 a. m. thereafter. The Chicago show will open at 2 p. m. January 22 and at 10 a. m. thereafter, the closing hour in each case being 10:30 p. m.

Exhibits for the fourth floor at the Palace may be received as early as 8 a. m., Tuesday, December 28. The receiving room will be closed at noon on the opening day and at 10 a. m. Monday, no cars, boxes or crates being permitted to enter after noon of the opening day. Shipments will be received at New York, Thursday morning, and at Chicago Friday morning preceding the opening day. At Chicago no cars will be admitted after Sunday following the opening day.

The new accessory exhibitors are:

BOTH SHOWS

Champion Auto Equipment Co., Chicago.
Burd High Comp. Ring Co., Rockford.
Clear Vision Cleaner Co., New York.
Efficiency Oil Corp., St. Louis.
J. Rogers Flannery & Co., Pittsburgh.
Friestedt Rlm Contractor Co., Chicago.
Militaire Autocycle Co. of America, Inc., Buffalo.
Platt & Washburn Refining Co., New York.
Hill-Smith Metal Goods Co., Boston.
Prest-O-Lite Co., Indianapolis.
Master Carburetor Corp., Detroit.
Wayne Oil Tank & Pump Co., New York.

NEW YORK ONLY

Adams Express Co., New York.
Adamson Mfg. Co., East Palestine, O.
Corbin Screw Corp., New Britain, Conn.
Boston Blacking Co., E. Cambridge, Mass.

Brilliant Products Co., New York.
Continental Auto Heater Co., New York.
Dubois Machine Shop, Inc., Albany, N. Y.
Eisenstadt Mfg. Co., St. Louis.
Foster Accessories Co., Chicago.
General Electric Co., Schenectady, N. Y.
Matt Irion & Sons, Louisville, Ky.
Jay & Dee Specialty Co., Inc., New York.
Juhasz Carburetor Co., New York.
Ward Leonard Electric Co., Bronxville, N. Y.
Lowe Motor Supplies Co., New York.
F. W. Mann Co., Milford, Conn.
Paul G. Niehoff & Co., Chicago.
Price Elec. Devices Corp., Waynesboro, Va.
Rubberet Co., Newark, N. J.
Seiss Mfg. Co., Toledo, O.
Small & Singleton, Brooklyn.
Standard Accessories Co., New York.
G. T. Sutterley & Co., Philadelphia.
Traveller Tire & Tube Co., Inc., New York.
Wells-Fargo & Co., New York.
Westinghouse Air Spring Co., New York.

CHICAGO ONLY

F. A. Ames Co., Owensboro, Ky.
Becker Bros., Chicago.
Edison Storage Battery Co., Orange, N. J.
H. H. Franklin Mfg. Co., Syracuse.
Hess Spring & Axle Co., Cincinnati.
National Carburetor Co., Chicago.
N. Y. & N. J. Lubricant Co., New York.

Winton Driver Contest Closes

CLEVELAND, Dec. 14—The chauffeurs of 25 Winton cars drove 303,919.3 miles without any expense for repairs in the eighth annual chauffeurs' contest of the Winton Co. The average repair expense for the nearly 2,000,000 miles in these eight contests is 19¼ cents a thousand miles. Thirty-five hundred dollars was awarded. Mileages were restricted to a maximum of 12,500. Twenty drivers covered this distance. A special prize to owners for a best record by a model 21-A was won by H. J. Browning, Tarrytown, N. Y., who will receive a new Winton for the one he is driving. The leaders among the winners having no expense and all making 12,500 miles, are:

Vivian Pritchett (\$500), Millville, N. J.;
F. S. Weaver (\$400), Easton, Pa.; A. C. Burton (\$300), San Francisco; W. M. Newsome (\$200), Atlanta, Ga.; Hugo Larson (\$100), Highland Park, Ill.

Winner Sells \$36,525 Cars

NEW YORK, Dec. 10—Car sales totaling \$36,525 was the winning score in a salesman's contest promoted by the Carl H. Page Motors Co., Mitchell dealer, during the past month. The prize was a gold watch, and G. H. Lovell, of the New York branch, was the winner.

Second and third places went to Philadelphia men—L. P. Schenck and J. P. Howard—with \$29,250 and \$22,665 to their credit. L. T. Johnson was fourth with \$21,560.

New York's 1916 Garages Cost \$587,000

NEW YORK, Dec. 13—During 1916 twenty permits for garages were filed in New York City, the estimated cost being \$587,750. The number of alterations filed was 67, with an estimated cost of \$297,065.

To Make Owen Magnetic in Cleveland Factory

**Owen and Rauch & Lang Merge and
Plan Expansion—Baker-R. & L.
Capital to Be Increased to
\$5,000,000**

NEW YORK, Dec. 13—A consolidation of the Owen Magneto Co., of this city, manufacturer of the Owen magnetic car, and the Baker R. & L. Co., Cleveland, O., has been effected. The new concern will be known as the Baker R. & L. Co., but the cars to be manufactured will be known as the Owen Magnetic, which will be built in two models. The Baker factory in Cleveland will be given over for the manufacture of Owen magnetic cars. The R. & L. factory in Cleveland will be used for the manufacture of bodies for the Owen magnetic and in addition will continue the manufacture of electric cars, which the Baker R. & L. Co. has been producing.

The present capital of the Baker R. & L. Co. will be increased from \$2,000,000 to \$5,000,000. R. M. Owen, who is president of the Owen Magnetic Co. in this city, will be vice-president and director of sales. The General Electric Co., which recently obtained a considerable interest in the Owen Magnetic or Entz patents, will have a director on the board of the R. & L. company because of its interests in the electric transmission used in the Owen magnetic cars.

The present Owen magnetic factory in this city will be continued for development purposes, as well as serving as a service department. The assets of the Owen Magnetic Co., however, have all been acquired by the Baker R. & L. organization.

It has been known for some months that the Baker R. & L. Co. was producing a gasoline-electric car, built under the Entz patents, which are the basic ones in the Owen magnetic design. This car is a smaller one than the present Owen magnetic which has been on the market during the past year.

The smaller Owen magnetic will use a six-cylinder motor, 3½ x 5, and have a 126-in. wheelbase. It is claimed to turn in a 76-ft. circle. This new car is specially designed to meet the needs of town-car work and is well suited for inside drive types, such as sedans, etc. This chassis was developed with a view of meeting the requirements of those owners at present using electric cars.

The Fort Wayne factory of the General Electric is already tooled up to take care of the manufacture of electric units for these two models of Owen magnetic cars, as well as to manufacture units for other licensed concerns.

Association News

WHAT DO YOU THINK OF THE GASOLINE TAX?

Editor Motor World:

At a meeting of the Automobile Business Association last evening, the plan relative to President Wilson's message to Congress charging an additional cent per gallon for gasoline to increase the revenue for the President's plan for defense, will say that this point brought out very much interesting discussion, ending with the suggestion that the writer be instructed to bring this matter to the attention of the Motor World with the suggestion that your paper get the sentiment of the various automobile associations concerning this plan.

The meeting of the association presented so many good thoughts in this respect that we thought it advisable to communicate with Motor World and solicit your cooperation in endeavoring to solicit associations throughout the country on this plan to see how the plan was generally decided. We have taken the matter before the senators and representatives from Michigan now in session at Washington, telling them of the seriousness of this issue and suggesting that they give the matter considerable thought.

Very truly yours

Ernest T. Conlon, Secretary,
The Automobile Business Association of
Grand Rapids, Mich., Inc.

Detroit To Play Host

DETROIT, Dec. 13—The Detroit Garage & Station Operators Association, the first garage association in Michigan, will be the host at the convention of the Garage Owners Association of Michigan, Jan. 20-21. The luncheon the 20th and the banquet the 21st will be complimentary to delegates and visitors.

Mason City Show March 9-11

MASON CITY, IA., Dec. 11—The second annual Mason City automobile show will be held in the new armory March 9 to 11, inclusive. L. W. McAuley and J. B. Snyder comprise the show committee of the association. More than 50 cars were exhibited last year and the attendance was over 5,000.

Kansas City President Resigns

KANSAS CITY, Dec. 11—Nelson Studebaker Riley, for four years head of the local branch of the Studebaker Corp. and president of the Kansas City Motor Car Dealers Association, has resigned from both positions to take effect Jan. 1.

Riley will be succeeded as head of the dealers' association by William A. Brace president of the Hudson-Brace Motor

Co., who formerly was vice-president George A. Bond, of the Bond Motor Co., becomes vice-president, to succeed Brace.

Zinc interests in the Joplin, Mo., field and oil holdings in Oklahoma will absorb Riley's attentions after leaving the Studebaker company. He and his wife will leave here early next month for a pleasure trip to Honolulu. E. W. Spencer, assistant manager, will act as Studebaker manager until Riley's successor is appointed.

Hartford Show Feb. 12-19

HARTFORD, CONN., Dec. 13—The ninth annual show of the Hartford Automobile Dealers Association will be held in the First Regiment Armory, Feb. 12-19. The dealers' association had planned to have the show at least a month earlier, but as the infantry is scheduled to be inspected by regular army officers the dates mentioned above were the earliest that could be secured permitting of a solid week. Ben F. Smith, who successfully guided the 1915 show, is to manage the event.

Show Mix-up in Columbus

COLUMBUS, Dec. 13—A slight mix-up has occurred in the matter of giving the annual automobile show in Columbus, which may result in the holding of two separate shows. The Columbus Auto Show Co. announced some time ago that it would give a show at the Memorial Hall, for a week beginning Jan. 29.

Since that time a movement has been started by the Columbus Automobile Club and the Columbus Auto Trades Association to hold a show at the same place, Jan. 12 to 16, inclusive. Efforts are now being made to get the two show organizations together and give only one show.

Chamber After Business Data

NEW YORK, Dec. 13—The National Automobile Chamber of Commerce is compiling data as to the business done by individual dealers. These figures will be used to show the benefit of the automobile business to different sections of the country and will be used in opposing the proposed taxation of Congress and in promoting other trade benefits.

Indianapolis Trade Elects

INDIANAPOLIS, Dec. 11—The Indianapolis Automobile Trade Association at its annual meeting chose these officers: President, B. M. Wiley; vice-president, E. W. Steinhart; treasurer, Fred I. Willis; secretary, L. S. Hunter; directors: T. W. Steinhart, Cadillac; J.

M. Block, Gibson Co.; Fred I. Willis, Central Rubber & Supply Co.; George A. Weidely, Weidely Motor Co.

No Association, But Meet

PORTLAND, ORE., Dec. 11—While the dealers of Portland no longer have a formal organization, they meet weekly and discuss questions pertinent to the trade. The members take turns at presiding and have chosen M. O. Wilkins secretary of the gatherings.

Ohio Owners to Oppose Lien Law

TOLEDO, Dec. 11—The Ohio Automobile Association, which is made up of car owners, has decided to oppose the lien law of the Garage Owners Association of Ohio, which is working for such a measure. The owners' association has also declared itself against the Stevens price maintenance bill, holding that it would tend to do away with competition in the sale of tires and accessories. A resolution against the imposition of the gasoline and horsepower tax was passed.

Sonoma, Cal., Organizes

SANTA ROSE, CAL., Dec. 9—The Sonoma County Automobile Dealers Association was formed last week in this city. It embraces Santa Rosa, Petulama, Healdsburg and Sebastopol. These officers were elected: President, L. A. White; vice-president, J. E. Bailiff; secretary and treasurer, H. Nagle. The organization was addressed by Herbert S. Smith, secretary of the Automobile Industries Association of Alameda County.

Show Space Goes Rapidly

MONTREAL, Dec. 11—More than 14,000 ft. of floor has been contracted for by exhibitors at the 1916 show of the Montreal Automobile Trade Association. It will be held in the Almy building; the total exhibition space is 20,000 ft.

Bill To Stop Cheating

WASHINGTON, Dec. 8—An amendment to the Interstate Commerce laws to prevent "cheating and swindling in interstate and foreign commerce," is proposed by Representative Adamson of Georgia, the chairman of the committee handling commerce legislation.

Chairman Adamson's bill, which will be taken up soon after the organization of the House committees, would prohibit the false branding and advertising of an article which goes into commerce between states, or between this country and foreign countries.

Simplified System

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Better Business Theme When Iowa Dealers Meet

Also, They Define the Legitimate Dealer
—Touch Upon the Jobber Question and Will Work for
Harmony

DES MOINES, Dec. 11—Better Business was the predominant theme at the convention of the Iowa Automobile Dealers Association Thursday. A feature was an address by President W. B. Taylor of the Garage Owners Association of Illinois on the necessity for a cost system. He compared a business without a cost system to a train with a blind engineer. More than 100 dealers were present.

These officers were chosen:

President, Jacob Friedman, Dyersville.
Vice-president, D. O. Babcock, Gowrie.
Secretary and treasurer, S. L. Seeman, Des Moines.

Directors: A. C. Heath, Fort Dodge; E. C. Dickinson, Algona; B. W. Sloan, Algona; F. C. Stearns, Rockwell City; E. J. Miles, Newton; A. C. Decker, Keokuk; T. J. Werhan, Waukon; W. A. Doze, Humeston; Joseph Maurer, Spencer.

The date for the next convention is the second Tuesday in January, 1917, and it will be held in Fort Dodge.

The first, and perhaps the most important, of the resolutions adopted, is a definition of a legitimate dealer, as follows:

1—The legitimate automobile dealer shall have properly executed the formal contract offered by the manufacturer or distributor with whom he has an account and shall have fully complied with the requirements thereof, respecting such matters as deposits, formal orders, warranties, etc.

2—He shall provide proper headquarters for the sale and exhibition of the product supplied by the manufacturer or distributor covered by the above mentioned contract.

3—He shall provide suitable facilities for properly pursuing the interests of his patrons with respect to the care and operation of the cars sold by him in accordance with a reasonable local service warrantee and in full accord with the warrantee of the manufacturer.

The purpose of this definition, the resolution states, is to clear up the "considerable degree of confusion which has been apparent in the automobile business respecting the relations between the manufacturer, distributor, and dealer," and it is stated that "the recognized purpose of this and other legitimate automobile trade associations is to promote the general welfare of all interests in the industry and to eliminate friction and discord in the customary contractual relations."

A corollary resolution states that "a retail dealer in automobile supplies and accessories is one who buys in bulk or quantity for resale to the consumer, in accordance with established trade methods, and maintains sufficient general stock to meet the requirements of his trade."

The third resolution is an appreciation of the action of a number of car factories that have revised their policies with respect to the announcement of new models.

The Iowa dealers deplore the sale by jobbers "to consumers at prices not only equivalent to, but in some instances less than, covered by the quotation to the dealer," and also adopted a resolution providing that a committee of three authorized members of the association "be appointed to investigate present methods and business practices in effect in the various districts of this state with the view to promoting more helpful and profitable relations between the jobber and legitimate retail dealer and by proper publicity and by such other methods as may seem justifiable to discourage the maintenance of policies that are harmful to the interests of those mentioned herein."

R. R. Nesbit, attorney for the Iowa association, recommended that the dealers work for a garage lien law containing the best features of other lien laws.

Maxwell Iowa Dealers Meet

DES MOINES, Dec. 11—Iowa dealers of the Maxwell Motor Co. assembled in Des Moines Thursday to discuss trade conditions and make plans for the 1916 selling campaign. The partial payment plan for selling Maxwell cars was outlined by F. L. Buckbee, factory representative from Detroit, and addresses were made also by E. M. Lubeck, of Chicago, district sales manager; C. R. Newby, of Detroit, factory sales representative, and W. L. Giffens, of the Maxwell Auto Sales Co., Chicago.

"Chalmers Day" in Iowa

DES MOINES, Dec. 11—"Chalmers Day" for Iowa was celebrated in Des Moines Thursday, with 200 Chalmers dealers and distributors in attendance. Business sessions were held during the day, with a luncheon party at noon and a dinner at night. John Gibson, Des Moines distributor, and J. H. W. Mackie, manager of the new Chalmers warehouse in Des Moines, were in charge. An afternoon parade of Chalmers cars was a feature.

Maxwell Has Gone 7,647 Miles

LOS ANGELES, Dec. 7—With a total of 7,647.6 miles covered since noon, Nov. 22, the Maxwell "25" which is making an attempt to establish a new world's non-motor-stop record, is now on the second half of the record run.

Chattanooga Club After "Cooperative Club" Men

Ask Members to Report Solicitations for
Investigation—Experience in Past
Indicates Need for the
Movement

CHATTANOOGA, TENN., Dec. 11—The Chattanooga Automobile Club has entered the fight against "fake cooperative buying" clubs, which have cost a number of the members large amounts, in addition to considerable annoyance. After having been persuaded by plausible accounts of how money could be saved by this scheme many Chattanooga motorists have been unable to get anything at all in return or were compelled to buy inferior articles at higher prices than those at which local accessory stores sold better accessories.

A letter sent out by the club follows: "For the protection of yourself and other members of the Chattanooga Automobile Club you are respectfully requested by resolution of the club at its last meeting to notify the board of directors of the club of any organization, individual or firm purporting to save you money on the purchase of tires or accessories by a so-called cooperative plan. Such organizations or individuals will be carefully investigated and a report promptly made to you on their reliability."

"This action of the club followed the reports of several members who have been duped by organizations of this character in the past. They have, in addition, been annoyed by attempts to collect membership fees for subsequent years since paying the subscription for the first year's membership in this spurious organization."

"Kindly make reports of such solicitation to the secretary at his office."

In several cases where the members notified the officials of the club that they had been solicited for such organizations, and an investigation was begun, the solicitor quickly disappeared from view.

"Gas" Ascends In the East

NEW YORK, Dec. 11—The Standard Oil Co. of New York yesterday advanced the price of gasoline in this city 1 cent a gal., making the tank wagon basis 20 cents a gal. Prices were advanced 1 cent a gal. at all stations in South Carolina and Louisiana. The Standard Oil Co. of Kentucky has advanced the price 1 cent a gal., effective Dec. 13, making the tank wagon price 18 cents.

"Gas" 21 Cents in Boston

BOSTON, Dec. 11—Gasoline went to 21 cents today. This is an increase of 36 per cent in six months and 60 per cent since last January.

Prominent Men of Trade Who Assume New Duties

Resignations and Promotions That Serve to Place Many Workers in New Places—Few of Them Leave the Industry

J. M. Hebert, formerly of San Francisco, has been made Studebaker supervisor in Portland, Ore.

W. H. Keller has been appointed supervisor of Zone C by the Maxwell Motor Sales Corp. His headquarters will be in Pittsburgh.

C. H. Booth, who was a district sales manager for the Chalmers Motor Co., has resigned. No successor has as yet been named. The territory of Booth included the states of Michigan, Ohio, Indiana and Kentucky.

H. R. Cottingham, former sales manager of the Ford Motor Co. of Canada in Montreal, has been appointed manager of the Saskatoon branch of the same company and has left to take up his new duties. The managing staff of the Montreal branch gave him a signet ring.

J. L. Kenyon has been appointed service manager of the Hupp Motor Car Co., Detroit.

M. E. Houser has succeeded J. L. Kenyon as service manager of the Cadillac Motor Car Co.

H. L. Wilson has been appointed factory representative by the King Motor Car Co., his headquarters being Dallas, Tex.

Walter Grasser is now assistant manager of the Grasser Motor Co., Detroit and Toledo, distributor of the Hupmobile in Michigan and northwestern Ohio.

J. F. Evans has been appointed superintendent of the Detroit service department maintained by the Maxwell Motor Co.

William McKay White, formerly with the Dayton Motor Car Co., Dayton, O., has been appointed sales manager of the Lozier Motor Co.

C. L. Logan, until recently manager of the Cuyahoga Sales Co., Cleveland, has been appointed a district manager by the Chalmers Motor Co. He will be in charge of territory in West Virginia, Ohio and Kentucky.

Jean H. Falk has become a special representative for the Chalmers Motor Co., with headquarters in Detroit.

H. L. Pelton has been appointed district manager of the Chalmers Motor Co. in the East, with the State of New York as his territory.

H. R. Curtis, manager of the Boston branch of the Splittorf Electrical Co., has resigned to become manager of the Excelsior Supply Co., Chicago. As a result of this vacancy several changes have been made: R. M. Ellis, manager of the Sumpter magneto department, New York, has taken his place; R. J. Carroll, manager of the Newark branch, has been promoted to the New York managership; Thomas F. Burpee, assistant manager in Philadelphia, has gone to Newark, and G. H. Lincoln, of the New York branch, is now assistant manager in Philadelphia.

Frank DeWitt, manager of the Detroit office of the Electric Products Co., Cleveland, has been appointed director of sales of the American Distributing Co., Detroit.

E. T. Causer, factory superintendent of the Mitchell-Lewis Motor Co., Racine, Wis., for the last three and one-half years, has resigned to become works manager of the R.

D. Nuttall Co., Pittsburgh, gears, couplings, etc.

S. W. Schooley has been made vice-president and sales manager of the Kearns Motor Truck Co., Beavertown, Pa.

Robert C. Enos was elected vice-president and general manager of the American Distributing Co., Detroit, at a recent meeting of the stockholders.

Charles R. Culver, for many years prominent in the Knox Automobile Co., has been made vice-president and general manager of the Stoddard Motor Car Co., Springfield, Mass., Pierce-Arrow dealer.

F. J. Reynolds, general manager of the pneumatic tire department of the B. F. Goodrich Co., has become affiliated with the United States Tire Co. in a similar capacity.

Edwin H. Loewus, recently metropolitan dealer for the Westcott Motor Car Co., has associated himself with Robert Lurie & Co. distributor of the Metz. Loewus will devote his energies to the light commercial cars now being marketed from the Metz factory. It is of 1,000 lb. capacity and, with electric lights and starter, lists at \$600.

New Zealand Dealer Coming

NEW YORK, Dec. 11—J. B. Clarkson, managing director of J. D. Clarkson, Ltd., Wellington, N. Z., will arrive in this city Dec. 22 to attend the New York show. The Clarkson company is one of the largest in Oceania.

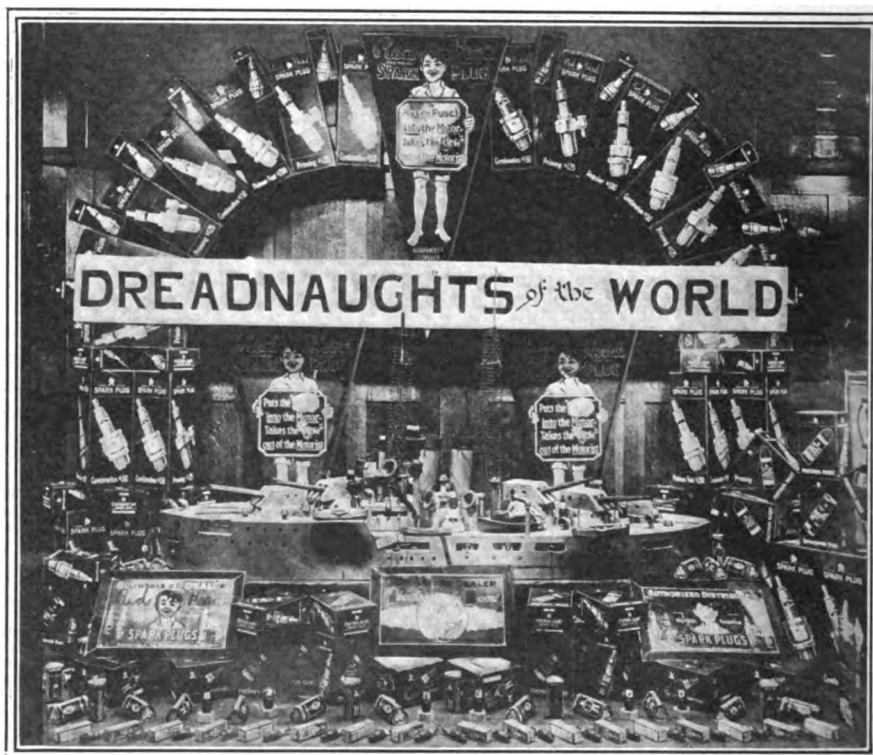
Anti-glare Devices Are Tested by Boston Club

Apparatus Set Up in Closed Room With Floor Painted to Represent an Oiled Roadway—Wax Figures for Men

BOSTON, Dec. 9—The Massachusetts Automobile Club last night conducted a test of anti-glare devices before 500 motorists for the purpose of observing whether the different non-glare devices really eliminate the glare. The tests were conducted in a closed room 140 ft. long. The floor was painted black to represent an oil roadway and a stand was erected at one end on which the headlights were mounted at the ordinary height above the ground. Wax figures were used.

In the tests some of the non-glare devices would pick up side objects, but were not strong enough to make the objects at 150 ft. clear. In other cases the devices gave sufficient light at 150 ft., but were glaring at 3½ ft. high.

Wilson Wins Grossman Window Prize



The E. L. Wilson Hardware Co., Beaumont, Tex., won the \$100 cash prize offered by the Emil Grossman Mfg. Co. for the best window display of Red Head spark plugs during 1915. More than 500 photographs were submitted in the competition. Each dealer was paid \$5 for submitting a photograph and letting the window stand one week. The award was made on: Selling potentiality, originality of idea, dominance of product, and timeliness of idea. The display was made by John Winter, the Wilson company's win-

dow trimmer, who used pipe fittings, tin pans, mouse traps and other material. The central object was a battleship in which the details were well worked out. A crane was hoisting aboard a carton containing one Red Head plug while other plugs were upon the deck. The committee of award consisted of F. E. Nixon, Federal Advertising Agency; George H. Griffiths, Hardware Age; Nelson T. Gutelius, Emil Grossman Mfg. Co.; W. I. Ralph, Class Journal Co.; Charles B. Shanks and Ray W. Sherman, Motor World.

MERCER USES ALUMINUM PISTONS FOR 1916

TRENTON, N. J., Dec. 6—The announcement of the cars made by the Mercer Automobile Co. shows that only minor refinements have been made for 1916.

The new series is known as the 22-72 and in general design the new models adhere closely to the previous 22-70. Four different body styles are offered, a six-passenger, four-passenger, run-about and raceabout. Both of these cars have a 132-in. wheelbase. The run-about and raceabout are built on a chassis of 115-in. wheelbase.

The auxiliary seat compartment of the six-passenger is finished in black walnut paneling. Doors that roll out of sight like the cover of a roll-top desk hide the extra seats. A complete set of tools is carried in a special compartment built into the right front door.

The power plant is the same four-cylinder L-head design, $3\frac{3}{4} \times 6\frac{3}{4}$ in., giving an S. A. E. rating of 22 horsepower, although the makers claim 72 on the block. The piston displacement is 298.2 cu. in. The pistons are aluminum and the only attachment to the exterior of the motor is the Zenith carbureter, the manifold being cast integrally with the cylinders.

The prices are \$3,000 for the touring and sporting models, \$2,900 for the run-about and \$2,750 for the raceabout.

Lee Tire is Reorganized

CONSHOHOCKEN, PA., Dec. 10—The formation of the Lee Tire & Rubber Corp., this city, has completed the refinancing of the Lee Tire & Rubber Co. and provided for a large increase in its output. The officers are: President, A. A. Garthwaite; vice-president, J. J. Watson, Jr.; secretary, Samuel Wright; treasurer, H. C. Coleman. The board of directors consists of Garthwaite and Watson and: C. B. Fleming, J. J. Johnson, S. H. Miller, G. M. P. Murphy, J. W. Prentiss and Joseph Wayne, Jr. A statement of earnings for 10 months ending October 31 shows net sales of \$2,794,025. The total profits were \$803,434. The surplus is given as \$412,475.

Fafnir Branch in Chicago

CHICAGO, Dec. 11—The Fafnir Bearing Co., New Britain, Conn., has opened a branch office at 39 South Clinton street, this city. D. D. Davis is manager.

Crescent Adds To Factory

JAMESTOWN, N. Y., Dec. 11—The Crescent Tool Co. is completing a factory addition which will increase production 35 to 40 per cent.

Owens Make 200-Mile Test

PHILADELPHIA, Dec. 11—Six Owen magnetic cars made a 200-mile demonstration run this week from New York to the salesroom of the Carl H. Page Motors Co., this city, by way of eastern Pennsylvania. Thirty technical experts and writers acted as observers and judges. The mechanism gave no trouble whatever.

Dann Insert Reduces Prices

CHICAGO, Dec. 11—The Dann Spring Insert Co. has reduced prices about 30 per cent. A set of inserts for a Ford car, which formerly sold for \$8, now sells for \$5.70.

Factory News of the Week

PREMIER TO BE BUILT BY \$2,500,000 COMPANY

INDIANAPOLIS, Dec. 10—Following the purchase of the Premier Motor Mfg. Co.'s plant by a syndicate, a new corporation is being formed which will be known as the Premier Motor Car Co. It will have a capitalization of \$2,500,000 and will continue the manufacture of Premier cars. A deal has been completed by which the new company becomes the owner of the T. B. Laycock Co. plant, and all the machinery and other material at the old Premier plant will be moved to the Laycock factory.

The prime movers in the new enterprise are J. C. Flowers, of the Gerlach-Barklow Co., Joliet; E. W. Steinhart, Indianapolis; C. F. Jensen, president of the Vanguard Mfg. Co., Detroit; F. W. Woodruff, vice-president of the First National Bank and the Woodruff Trust Co., Joliet; George Woodruff, president of the First National Bank of Joliet and president of the Illinois Bankers Association; T. R. Gerlach, vice-president of the Gerlach-Barklow Co., Joliet, and H. L. Thompson, secretary of the Gerlach-Barklow Co., Joliet.

It is understood that others in Joliet, New York, Chicago and elsewhere are also interested. Mr. Flowers is slated for president and general manager of the new company.

1,000,000th Ford Made

DETROIT, Dec. 10—At 1:55:30 this afternoon, car No. 1,000,000 of the Model T Ford was completed at the Ford factory. The first Model T was made in 1908. Including other models, the company has made 1,080,000 cars.

Ford Buys 20 Acres

DETROIT, Dec. 10—Vice-president Frank L. Klingensmith of the Ford Motor Co. confirmed today the purchase by the Ford company of property aggregating about 20 acres of ground on Woodward avenue and adjoining the big plant to the north. For the present it is said that only provisions will be made for larger railroad switching facilities. With the newly-acquired property, the Ford company has a frontage of about 1,490 ft. on Woodward avenue.

Commercial Machine in New Quarters

DUNKIRK, N. Y., Dec. 11—The Commercial Machine Co., camshaft manufacturer, has taken possession of new quarters at 33 West Front street. The new equipment includes a tempering furnace which will increase the plant's capacity about 50 per cent.

Dixie Magneto on Continentals

NEWARK, N. J., Dec. 14—The Splitdorf Electrical Co. has secured from the Continental Motor Mfg. Co., Detroit, an order for Dixie-40 magnetos, cables and switches. Continental motors, it is stated, used for show purposes or samples, will be Dixie-equipped and this equipment will be provided in orders unless otherwise specified.

MAY BUILD LAND-AND-WATER CAR ON COAST

LOS ANGELES, Dec. 8—A factory is to be built in this city for the manufacture of hydromotors, a land and water automobile. The company is now applying for articles of incorporation. A. Maini is president of the company, which will put out the first model, and G. Lopezich, president of the International Bank of Los Angeles, is to head the company which will manufacture these land and water cars.

The machine, which was shown at the exposition, weighs 3,000 pounds. The body is of aluminum. All the joints are made water-tight. The length of the car is $16\frac{1}{2}$ ft. In the water the machine is propelled by a 16-in. screw propeller. The wire wheels are 42 in.

On the land the car rides on its springs, but in the water a patented bronze sliding device locks the water out of the axle housing. The first machine is propelled by a 6-35 Haynes engine hung on a special chassis.

A ventilator at the prow and a small opening on the forward deck allow enough air circulation to keep the engine cool. Gear levers at the right of the steering post allow the driver to shift the power from the wheels to the screw when the machine begins to float. Both the wheels and the propeller may be operated at the same time.

A sleeve engages a pin on the steering post which provides for change of steering control, automatically locking the front wheels and engaging the rudder. A reverse of the operation releases the wheels and disengages the rudder.

According to the present plans, four models are to be offered—a two-passenger roadster, a seven-passenger touring car, a light delivery truck and seven-passenger limousine. The same chassis is to be used for each type of body. The limousine is to sell for \$3,000 and the roadster for \$2,000, with the touring car and truck coming between these figures.

It is claimed by local motor car experts that the machine has great possibilities both as a commercial and pleasure vehicle, while as a military and naval machine it is to create a real sensation.

Myers Getting Ready

SHEBOYGAN, WIS., Dec. 6—The Myers Machine Co., which has been re-incorporated and capitalized at \$50,000 to include the plant and business of the Wisconsin Motor Truck Co., Baraboo, Wis., has awarded contracts for the erection of a 75 x 75-ft. addition to accommodate the truck shop. The new officers of the company are: President, George P. Myers; vice-president, Louis P. Helm, formerly of Baraboo; secretary, E. R. Bowler; treasurer, Joseph G. Myers. The Myers company will continue to manufacture woodworking machinery. Helm will manage the motor truck department, which is expected to be in running order by Feb. 15, but will actually start work Jan. 1. The line will consist of 1,500-lb., 1-ton and 2-ton trucks, worm-driven. Police and fire cars will be made to order. The Myers company is now buying the new equipment needed.

Kelly Tire May Move

AKRON, O., Dec. 11—The Kelly-Springfield Tire Co. may move its Akron plant to Springfield, O., according to plans of the company. The officials have been negotiating for the purchase of land there upon which to erect buildings.

MOON ADDS NEW 6-30 TO SELL AT \$1,195

ST. LOUIS, Dec. 13—The Moon Motor Car Co. has added a new 1916 Six-Thirty at \$1,195, completely equipped. In many respects the car resembles the Six-Forty seven-passenger selling at \$1,475. The wheelbase, however, is shorter, being 118 in. The $3\frac{1}{4}$ x $4\frac{1}{2}$ Continental-Moon unit power plant is cast en bloc with cylinder heads removable. The tires are 33 x 4 and are demountable with an extra rim.

The new model has a tumble-home body with convex side and embodying streamline design. Other features of the body are deep cowl and instrument board; wide tonneau doors, 22-in., with concealed hinges and concealed locks; 44-in. leg room.

Ahlberg Factory in Sidney

LOS ANGELES, Dec. 11—The Ahlberg Bearing Co. plans to establish a branch factory in Sidney, Australia.

Gray & Davis Declares Dividend

BOSTON, Dec. 11—The regular quarterly dividend of $1\frac{3}{4}$ per cent has been declared on the preferred stock of Gray & Davis, Inc. It is payable Jan. 1 to stockholders of record Dec. 22.

Injunction for Prest-O-Lite

LOUISVILLE, KY., Dec. 10—A preliminary injunction has been issued here in favor of the Prest-O-Lite Co., Inc., Indianapolis, in its suit against the Sun-Lite Gas Co., Thomas F. Hackett, C. A. Tucker and J. J. Moran and Margaret Moran, charging illegal refilling of Prest-O-Lite tanks. The injunction compels the refillers to destroy the identity of the Prest-O-Lite cylinder, to convert it into a properly branded Sun-Lite tank and then forbids the substitution of such a tank in a sale.

Jameson to Rest Two Years

TOLEDO, Dec. 11—C. S. Jameson, vice-president and director of the Willys-Overland Co., who has been in ill health for several months, has decided to relieve himself of all commercial responsibility and obtain a much-needed rest. That he may carry out this intention he has resigned as an officer and director of the Willys-Overland Co. to take a two years' leave of absence. He leaves shortly for Florida, where he will remain all winter.

Frome To Make Trucks

SHEBOYGAN, WIS., Dec. 13—The R. L. Frome Mfg. Co., Howard's Grove, Sheboygan county, Wis., a large producer of boxes, will manufacture a light delivery truck, employing worm gear drive.

Link Belt Chairman Passes Away

CHICAGO, Dec. 11—James Mapes Dodge, 63, chairman of the board of directors of the Link Belt Co., died Dec. 4. He was one of the pioneers in the conveying and elevating art and his inventive genius was a factor in its development. Among his inventions was that of the silent chain.

New Wyman & Gordon Office

WORCESTER, MASS., Dec. 11—The Wyman & Gordon Co., drop forgings, has consolidated its Western sales offices in Cleveland. The manager is J. D. Sutherland.

Coming Events

*Indicates sanction by A. A. A.

- Jan. 5-6..... New York City, S. A. E. Winter Session, Standards Committee Meeting.
- Jan. 7, 8, 10, 11.. New York, Meeting National Assn. of Automobile Accessory Jobbers.
- Jan. 20-21..... Detroit, Convention of Garage Owners Assn. of Mich., Hotel Statler.
- Jan. 25..... Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
- Jan. 26-27..... Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
- Feb. 21-26..... Countrywide Electric Prosperity Week.
- May 13..... New York City, Sheepshead Bay Speedway race meet.
- May 30..... Indianapolis, Ind., Track race meet.
- June 17..... Chicago, Ill., Speedway race meet.
- June 28..... Des Moines, Ia., Speedway race meet.
- July 4..... Minneapolis, Minn., Speedway race meet.
- July 4..... Sioux City, Ia., Speedway race meet.
- July 15..... Omaha, Neb., Track race meet.
- Aug. 5..... Tacoma, Wash., Track race meet.
- Aug. 18-19..... Chicago, Ill., Elgin road race.
- Sept. 4..... Des Moines, Ia., Track race meet.
- Sept. 15..... Indianapolis, Ind., Speedway race meet.
- Sept. 16..... Providence, R. I., Track race meet.
- Sept. 30..... New York City, Sheepshead Bay Speedway race meet.

THE SHOW CIRCUIT

- Dec. 11-18..... New Castle, Pa., Show, Skating Rink on Nechannock avenue.
- Dec. 31-Jan. 8.. New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
- Jan. 1..... Springfield, Mo., Show, Springfield Motor Car Dealers Assn.
- Jan. 3-9..... New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
- Jan. 7-13..... Milwaukee, Show, Milwaukee Automobile Dealers, Inc., Auditorium.
- Jan. 8-15..... Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn., Convention Hall.
- Jan. 8-15..... Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
- Jan. 10-15..... Fort Wayne, Ind., Show, Fort Wayne Auto Trade Assn.
- Jan. 10-15..... New Bedford, Mass., Show, State Armory.
- Jan. 14-22..... Dayton, Dayton Automobile Dealers Assn. Show, Delco building.
- Jan. 15-22..... Detroit, Mich., Show, Detroit Automobile Dealers Assn.
- Jan. 17-19..... Erie, Pa., First Annual Show, Erie Automobile Dealers Assn.
- Jan. 17-22..... Rochester, N. Y., Show, Exposition Park, C. A. Simmons, manager.
- Jan. 17-24..... Wilmington, Del., Second Annual Show, Wilmington Automobile Trade Assn., Hotel Du Pont. J. H. Nixon, chairman.
- Jan. 18-22..... Lancaster, Pa., Show, Conestoga Park Pavilion.

- Jan. 18-22..... Baltimore, Md., Show, Baltimore Automobile Dealers Assn., Fifth Regiment Armory.
- Jan. 18-29..... Fargo, N. D., Third Annual Gate City Auto Show, J. I. Case Building.
- Jan. 22-29..... Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.
- Jan. 22-29..... Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 22-29..... Montreal, Can., Show, Montreal Automobile Trade Assn., Almy's Building.
- Jan. 23-30..... Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.
- Jan. 24-29..... Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
- Jan. 24-29..... Scranton, Pa., Sixth Annual Show, Pleasure Cars, Town Hall. Hugh B. Andrews, manager.
- Jan. 29-Feb. 5.. Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
- Jan. 29-Feb. 5.. Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
- Jan. 31-Feb. 1-2. Scranton, Pa., Commercial Car Show, Town Hall. Hugh B. Andrews, manager.
- Jan. 31-Feb. 5.. Fall River, Mass.; Show: Raymond C. Borden, Mgr.: State Armory.
- Feb. 7-12..... Kansas City, Mo., Show, Kansas City Motor Car Dealers Assn., Convention Hall.
- Feb. 9-12..... Peoria, Ill., Show, Peoria Automobile & Accessory Assn., Coliseum.
- Feb. 12-19..... Hartford, Conn., Show, Hartford Automobile Dealers Assn., State Armory.
- Feb. 14-19..... Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
- Feb. 19-26..... Newark, N. J., Show, First Regiment Armory. C. L. Fitzgerald, manager.
- Feb. 20-27..... Grand Rapids, Mich., Seventh Annual Show, Grand Rapids Auto & Accessory Dealers Assn., Klingman Bldg.
- Feb. 21-26..... Portland, Me., Show, Exposition building.
- Feb. 21-26..... Bridgeport, Conn., Third Annual Show, State Armory. B. B. Steiber, manager.

Motor Car Securities Quotations

	Dec. 11, 1914	Dec. 11, 1915
	Bid	Asked
Ajax-Grieb Rubber Co., com.	100	425
Ajax-Grieb Rubber Co., pfd.	100	105
Aluminum Castings, pfd.	95	100
Chalmers Motor Co., com.	82½	150
Chalmers Motor Co., pfd.	87½	101
Chevrolet Motor Co., com.	84½	148
General Motors Co., com.	84½	538
General Motors Co., pfd.	25	129
B. F. Goodrich Co., com.	94	112
Goodyear Tire & Rubber Co., com.	185	334
Goodyear Tire & Rubber Co., pfd.	101	112
International Motor Co., com.	30	34
International Motor Co., pfd.	35	60
Kelly-Springfield Tire Co., com. (old)	68	205
Kelly-Springfield Tire Co., com. (new)	77½	75½
Kelly-Springfield Tire Co., 1st pfd.	77½	98
Kelly-Springfield Tire Co., 2nd pfd.	95	75
Maxwell Motor Co., com.	14	74
Maxwell Motor Co., 1st pfd.	43	90
Maxwell Motor Co., 2nd pfd.	16	57
Miller Rubber Co., com.	335	243
Miller Rubber Co., pfd.	100	150
Packard Motor Car Co., com.	90	102
Paige-Detroit Motor Car Co., com.	700	700
Peerless Motor Car & Truck Corp., com.	30½	35½
Portage Rubber Co., com.	25	30
Portage Rubber Co., pfd.	80	99½
Regal Motor Co., pfd.	104	115
Reo Motor Truck Co., com.	21½	23½
Reo Motor Car Co., com.	46½	44
Stewart-Warner Speed, Corp., com.	97	100
Stewart-Warner Speed, Corp., pfd.	32½	34
Studebaker Corp., com.	87	114
Studebaker Corp., pfd.	67	85
Swinehart Tire & Rubber Co., com.	48	51
U. S. Rubber Co., com.	100	102
U. S. Rubber Co., 1st pfd.	100	110
White Company, pfd.	100	102
Willys-Overland Co., com.	77	80
Willys-Overland Co., pfd.	86	114

*Par value \$10; all others par value \$100.

MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 12

New York, December 22, 1915

Ten cents a copy
Two dollars a year

Before the Shows

Your Question Answered

In this issue of Motor World you will read of 1916 cars and new accessories to be seen at the Shows.

Naturally, one of the most vital questions is—"What progress has been made in the development of electrical equipment?"

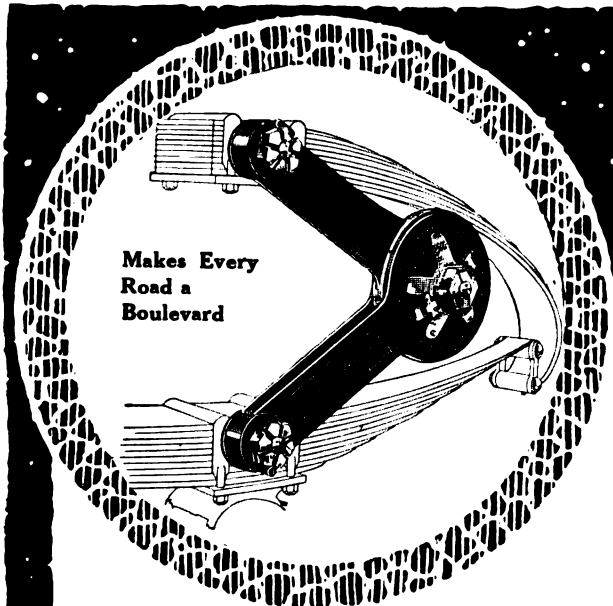
Suppose, then, that we tell you of a system in which—

The units are scarcely larger than a magneto. Weigh 30 per cent *less* than last year's units. Brushes and commutator are accessible. Armature can be lifted out if desired. Swinging brushes are used—they cannot stick. Simplest in design. System backed by many years of practical experience. More powerful and efficient than any other.

The name is "Gray & Davis" and a better system than we have ever built before. It represents a remarkable advance in the construction of a starting-lighting system. Of course you will want to see it. Also the new Gray & Davis dynamo with ignition attachment. Not forgetting the equipment for Ford cars which, during the past year, has proven such a quick-selling proposition.

Whatever else you do, *don't fail to visit* the Gray & Davis exhibit at the New York and Chicago Shows.

SEE IT



If you appreciate motoring comfort, witness the convincing demonstration of how the

★ *Hartford*

SHOCK ABSORBER

controls the action of an automobile spring, absorbing the surplus energy and preventing its dissipation upon the body of the car, to the discomfort of its occupants. Learn how it actually

Makes Every Road a Boulevard

Make the **Hartford Auto Jack** lift 1000 pounds with a simple twist of your wrist. This is the best auto jack money can buy—easiest-working, strongest, handsomest.

Examine the **HARTFORD BUMPER** with its shock absorbing arms. It takes the sting out of every blow. Protects all the car and beautifies it, too.

See the **HARTFORD CUSHION SPRING** and the wonderful **E. V. HARTFORD ELECTRIC BRAKE**.

These interesting everyday automobile necessities will be shown and practically demonstrated in our exhibit at the auto show, Grand Central Palace, New York.

HARTFORD SUSPENSION CO. E. V. HARTFORD, President 142 Morgan St., Jersey City, N. J.

Makers of the Hartford Cushion Spring, Hartford Electric Brake, Hartford Auto Jack, Hartford Bumper.

BRANCHES: Boston, 319-325 Columbus Avenue; Chicago, 2637 Michigan Avenue; New York, 1846 Broadway and 212-214 West 88th Street; Indianapolis, 425 North Capitol Boulevard.

DISTRIBUTORS: Chandler & Burbery, 332 Broad St., Newark, N. J.; Auto Accessory & Speedometer Co., Denver, Colo.; Chauslor & Lyon Co., San Francisco; Los Angeles, Oakland, Fresno, Portland, Seattle; Dyke Motor Supply Co., 600 Grant Boulevard, Pittsburgh, Pa.; Pennsylvania Rubber & Supply Co., Cleveland, O.; Hartford Agency, 1437 Vine Street, Philadelphia, Pa.; Reinhard Bros. Co., Inc., Minneapolis, Minn.; Hartford Agency, 1803 Grand Avenue, Kansas City, Mo.; Fred Campbell, 1109 Locust St., St. Louis, Mo.; Charles Rubel & Co., 1312 Fourteenth Street, N. W., Washington, D. C.; Canadian Distributors, Hyslop Brothers, Limited, Toronto, Canada.

*Formerly Truffault-Hartford.



AT THE AUTO SHOW

Why We are Studebaker Dealers



"As a first consideration, it is a satisfactory and profitable business relation. This is true of the product of the Studebaker Factories, as well as the mutual feeling of confidence existing between the Studebaker Company and the Kansas Motor Car Company.

Volume is such an important factor, that it seems to be the very foundation of a successful and profitable business. Volume can only be attained by selecting a car to sell that is well suited to the trade in the territory in which a concern is operating. Obviously the car, with which it is

possible to produce volume, must be manufactured in quantities and backed by a company of sufficient prominence to merit the confidence of the buying public.

Of the few concerns of prominence and facilities for quantity production, none offers a line so comprehensive as Studebaker—a Forty Horse Power, Seven Passenger Four at \$885. A Fifty Horse Power, Seven Passenger Six at \$1050. Each a perfected model, uniform in principle of design and mechanical construction. With such a line and such a name any dealer has the necessary foundation for volume. **PRACTICALLY EVERY CAR BUYER IS A STUDEBAKER PROSPECT."**

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The Kansas Motor Car Co.
Wichita, Kansas

Four Cylinder Models

Touring Car, 7-passenger . . .	\$ 885
Roadster, 3-passenger . . .	850
Landau-Roadster, 3-pass. . .	1185
Panel Delivery Car	875
Open Express Car	850
Station Wagon	875

STUDEBAKER

South Bend, Ind. Detroit, Mich. Walkerville, Ont.

Address all correspondence to Detroit

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Roadster, 3-passenger . . .	1000
Landau-Roadster, 3-pass. . .	1350
Coupe, 4-passenger	1550
Limousine, 7-passenger . . .	2250
F. O. B. Detroit	



Each year more and more cars keep to the roads all winter. The present type of all-year car and the great utility of the car in the cold months have produced this result. Car owners will purchase more tires this winter than in other winters. Automobile owners everywhere know that they get the greatest tire value for their money in the Fisk Grey Non-Skid Tire.

Be prepared to supply this demand.

Fisk Grey Non-Skids at 5 per cent over the price of Fisk Plain tires and at a smaller price than many other plain tires, are the greatest builders of business for the dealer which he can obtain today.

You want all the profitable business you can get.

There is no easier way to get it than to "cash in" on the demand for Fisk Grey Non-Skids.

Two things create this demand. First: the tire itself, which is the best tire our years of experience have taught us to make. Second: The momentum of the great volume of summer sales will keep on going all winter.

Don't let this opportunity get by you.
Write Dept. 23 for our Dealer Proposition.



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Factory and Home Office

Chicopee Falls, Mass.

Fisk Branches in All Principal Cities

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Zenith Carburetor Co.	120



"NORMA" BALL BEARINGS

(PATENTED)

However well a car may be built, its actual performance will be no better than that of its electrical accessories — ignition apparatus, lighting generators and starting motors. The pleasure-giving and service-giving capacity of a car depends upon the smoothness and silence and dependability of these accessories.

You will find, on investigation, that the high-grade ignition apparatus, lighting generators and starting motors used on the best cars and adopted by the best car makers as standard equipment, are equipped with "NORMA" Ball Bearings — simply because accessory manufacturers and car builders have proved that "NORMA" stands for silence, speed and service.

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SIX

Model 86

A Comparison of Values

Compare the Overland Six with the Six cylinder cars your competitors sell.

Go over the comparative specifications point by point.

You will find that in proportion to the price the Overland gives more than any other Six ever built.

It is a bigger car—*seats 7 passengers comfortably.*

The wheelbase is longer—*125 inches.*

Tires are bigger—*35 x 4½ inches.*

The motor is smoother and more powerful—*45 horsepower, latest en bloc design.*

The rear springs are longer and underslung.

The finish is more lustrous.

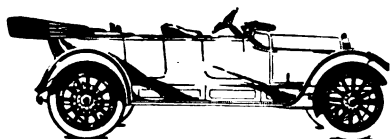
The control buttons on steering column are more convenient.

Specifications throughout are those of a thoroughly high grade car. Yet the price is only \$1145.

It is the most impressive value offered in a six-cylinder car.

The Willys-Overland Co.

Toledo, Ohio



Overland Model 86, Six Cylinder Touring Car

Price - - \$1145, f. o. b. Toledo

"Made in U. S. A."



1916 Show Surpasses in Newness and Variety

HAVE you ever seen all at once thirty-five different makes of motor cars selling for \$1,000 or less?

Did you know that of the 108 different chassis models produced nearly one-third sell for \$1,000 or less?

Have you ever seen all at once no less than eighteen different eight-cylinder cars?

Have you ever seen four different makes of twelve-cylinder cars at once?

If you can truthfully answer yes to these questions, perhaps you don't need to push past the ticket takers at Grand Central Palace and mount the marble stairs that lead to the Sixteenth Annual National Automobile Show of the National Automobile Chamber of Commerce, to give it its full title. But then again, perhaps you do.

Thirty-five Under \$1,000

For these do not include more than a small part of the newness that will be spread out before those who attend. No previous New York show has anything on the 1916 model insofar as newness and variety is concerned.

In the first place, as we have already pointed out, you will find thirty-five different makes of cars selling for \$1,000 or less. Some of them are newcomers that have never appeared at a New York show before; some of them are new principally in price, and some of them are old in price but new in construction.

In 1916 there will be more cars selling at or under \$1,000 than ever before—that is, considering the number of makers whose names are inscribed on the

1916 roll as active producers. Last year the number was about the same, but the number of manufacturers was greater—118, to be exact.

In other words, the percentage of makers producing cars in this class for the 1916 market is considerably higher than was the case last year. For 1916 it is 32.4 per cent, as compared with 29.4 per cent for 1915. As an indication of the trend of prices, an examina-

tion of the rise to popularity of cars in this class is enlightening—and it goes far to emphasize the greater value which the car dealer year by year is able to offer for the purchase money he accepts from the purchaser.

In 1910, which is the first year for which accurate statistics are available, there were 239 different chassis models on the market, and of these, only seven sold for \$1,000 or less. This was 2.9 per cent. The following year, this percentage climbed to 10, there being 27 cars in this class, of 270 different makes. In 1912, there was a further increase, the percentage going to 18.6, this representing 36 models out of 193 different makes. But in 1913 there was a falling off to 14 per cent; there were 156 chassis models, of which 22 sold at or under the \$1,000 mark. It was in 1914 that the tide set in the other way and it has been a strong tide. The percentage in that year was 18.7 and in the two succeeding years it was 29.4 and 32.4 respectively.

Cars Bigger and Better

And you will observe that the least surprising feature of this new crop of low-price cars is that they actually are bigger and better cars for the price than ever before. For example, without exception they are all equipped with electric lighting and starting apparatus and they have other equipment which last year was only beginning to be apparent. Furthermore, the average wheelbase is longer. During the year gone by the average wheelbase of a car in this class was just about 106 inches; for 1916 it is just over 111 inches.

Newness Revealed at the Show

Roadsters For Four

18 Different Eights

4 Types of V Twelves

Fours Under \$1,000

Detachable Car Tops

Smoother Body Lines

Simplification of Control

Touring Models For Six

So much for the car in the \$1,000 class. It does not predominate as yet by any means, though it is a mighty interesting proposition and one which constantly is growing more interesting.

You will find at this show the greatest gathering of multi-cylinder cars that has ever been brought together under one roof. There are eighteen eights and four twelves. When old Father Time closed his books on the year 1914 there were mighty few cars made in the United States with motors having more than six cylinders—about 1 per cent of chassis models, to be exact. And now there are 22 of 'em. Quite a growth for one year, isn't it? But the end is not yet and it is likely that before another year has winged its way there will be others to add to the list.

In the meantime, you will find it instructive to view what is offered now. When a year ago the trade was electrified by the presentation of a six at \$785, there were few who would predict that within a year it would be possible to buy an eight for \$950. But you can. Just look over this list of eights at prices running all the way from \$950 to \$2,350; Abbott, \$1,950; Apperson, \$1,850; Cadillac, \$2,080; Cole, \$1,785; Daniels, \$2,350; Jackson, \$1,195 and \$1,685; King, \$1,150; Mitchell, \$1,235; Oakland, \$1,585; Oldsmobile, \$1,295; Peerless, \$1,890; Regal, \$1,200; Ross, \$1,350; Standard, \$1,735; Stearns-Knight, \$2,050; Briscoe, \$950; Partin-Palmer, \$1,195.

No Two Eights Alike

In this bunch of eights no two are alike. Naturally they all have the new V-type motor and they all have poppet valves except one and that one is an exception in more senses than one. This is the Stearns-Knight. It is the first time that a V-type Knight engine has been produced.

In a measure the new twelves look much like the eights, except that they have four more cylinders and the individual blocks of cylinders are set at an angle of 60 deg. instead of 90 deg. Here, too, you can get a car for almost any price you have a mind to pay from the Enger at \$1,095 to the Packard at \$2,750, and in between there is a National at \$1,990 and the Pathfinder at \$2,475.

Among the older makers who still are producing the more familiar four- and six-cylinder cars there also is much that is new, though in this respect it is pertinent to add that there are fewer four-cylinder models this year selling between \$1,250 and \$2,000, this including the \$1,500 car, than for many years past. Actually, in this division there are more than twice as many fours as eights and six times as many sixes as fours.

In the four-cylinder class there have been very few new models produced by old makers; that is to say, models that are new all the way through from stem

As at past shows four floors are occupied—those below the white line around the building. The visitor enters at the Lexington avenue entrance, shown by an arrow at the right. The cross streets are West 46th and 47th



to stern. Among them Regal has a new four and the Moline-Knight also has developed a smaller model at \$1,375.

In the six-cylinder field, on the other hand, there are a noteworthy number of additions, and most of them come within the popular-price zone. For example, there is now a new Chalmers at \$1,350, and Buick also has brought out a lower-priced six—\$985. And, by the way, you won't see any more four-cylinder Buicks at the shows, for Buick, in common with so many others, has stopped making them. Among the other new sixes might be mentioned the National at \$2,375, the Dorris at \$2,476, the Davis at \$1,250, the Empire at \$1,095, the Glide and the Paige at the same figure, the Winton at \$2,285 and the Simplex and the Pilot.

Three Newcomers

In the newcomers class—cars which have never before been exhibited at a New York show—there are three. These are the Standard, which is produced by the Standard Steel Car Co., Pittsburgh, and the Sun, which is made by the Sun Motor Car Co. The Standard will be shown in two forms, an eight at \$1,735 and a six at \$2,100, and the Sun is a six. The third is the S. J. R. four, \$795, made by the S. J. R. Motor Co., Boston.

Among the new sixes there are two which are deserving of mention all by themselves, though little can be said about one of them. This is the new car which is being revealed for the first time

by the Hudson Motor Car Co. and which is said to set a new standard in engineering achievement. Except that the car will be ultra-modern in design, construction and finish, little has been permitted to become public concerning it and it will be necessary to attend the show to see it and learn more about it.

Marmon Has a New One

The other, which is here revealed for the first time, is the Marmon, and in a number of respects it establishes a new era in motor car design. In the first place, it marks the first practical introduction of the aluminum cylinder block. There have been a few cars turned out during the year gone by with aluminum cylinders, but this is the first stock car to be so equipped. Furthermore, this motor is of the now popular overhead valve type with detachable head and is the first Marmon for many years to sell for less than \$3,000. The price of the car has been set at \$2,700.

As indicating the extent to which aluminum has been used in this car, suffice it to state that this metal has been used for such parts as fenders, radiator shell and the center part of the rear axle housing. And as a measure of the ability of the car, let it suffice that as a result of tests on the Indianapolis Speedway the following acceleration was shown: 10 to 20 m. p. h., 3.6 sec.; 10 to 30 m. p. h., 8 sec.; 10 to 40 m. p. h., 12.4 sec.; 10 to 50 m. p. h., 17.6 sec.

And there is still another car about which little has gotten past the factory

censor. This is the Cole. Except that it is to be an eight and that the price probably will be lower than any previous Cole eight, the public is left in the dark and only a visit to the show will let in the light.

Of course, there are a number of other new cars on the market this year, but none of them will be revealed at the New York show. This list includes such names as Bell and Biddle, Brewster and Daniels, Dispatch and Farmack, Harvard, Madison and Mecca, Monitor and Ross, Sterling, Stewart and Wayne. Brief descriptions of all these cars appear on pages 22 to 38, and quite a number of them will be shown for the first time at the Chicago show.

Many Detachable Tops

A detachable coupe and sedan top, which a year ago was just making its appearance, has swept into great favor during the twelvemonth. In addition to Kissel dealers, who were among the first to be able to extoll the advantages of what is virtually two cars for the price of one, a long list of other dealers now can do so. Among them you will notice such names as Hupmobile, Chalmers, Hudson, King, Reo, Studebaker, Saxon, Overland, Jackson, Mitchell, Dodge, Cole, Haynes, Jeffery, Paige and others.

And when you look at these bodies, a few of which are illustrated a little further back in this number of Motor World, you will come to realize the great strides which have been made in the production of these creations during the year. Whereas the first of them that appeared were not always pleasing to the eye, and in some cases were prone to develop disturbing rattle after not very long use, the new bodies are distinctly engineering creations which have been made to fit properly and from which rattle has been eliminated. In short, they have now become a genuine part of the car to which they are attached, and their designers have every reason to be proud of their handiwork.

Workmanship Better

As for regular bodies, the kind to which the detachable tops attach, these, too, have taken on added symmetry, a more readily apparent touch of elegance, and their sides have become smoother than ever and a wee mite higher. The divided front seat which this year became popular, is being continued by practically all of the makers who introduced it, and a number of others have brought out bodies of this kind.

Another significant trend of the season which will be a feature of the show is the gradual elimination of body mouldings. The car which heretofore has had a moulding or beading of wood along the top body lines no longer has this in a great many cases, a fact which is in a large measure responsible for the

"yacht-like" lines of some of the new cars.

Again, the straight lines which once were in great favor seem to be not so generally in demand, and the result is that the line from the front of the body to the back of the tonneau generally is lowest at the front, with a gentle dip in the center and a rise at the rear, giving a long, sweeping curve. Similarly, the straight lines of the engine hood fast are disappearing and the typical car now has a sloping and tapered hood, the general effect of which is far more pleasing than the straight lines of yesteryear.

The auxiliary seats, which from the first always have been somewhat of a problem to those who sit in them and those who sit behind them, are better arranged this year than ever before, and in the majority of cases when not in use they are not in sight, either. In some cases they have been made to fit snugly into a cavity in the shell at the back of the driver's seat, and in others they sink into a well in the floor.

Although the two-passenger roadster and the five- and seven-passenger touring car are still holding their own in the affections of the buying public, you will

see a great increase in the number of cars designed to accommodate three, four and six passengers.

The three- and four-passenger roadsters especially are making a strong bid for popular favor. In a measure this is but additional evidence of the demand for additional carrying capacity which all along has been noticeable. In the three-passenger roadster the driver occupies the customary place, and the seat beside him is widened for two passengers.

Four-passenger Roadster

The four-passenger roadster, on the other hand, is a quite different production, which partakes somewhat of the features of the divided front seat touring car. The seats for the two passengers which ordinarily would not find room in the usual roadster, are located behind the forward seats, which are divided. The third seat is roughly semi-circular in shape and accommodates two persons comfortably, the aisle between the front seats being used temporarily for leg room. So far only the Apperson and Chandler appear with such a body, though it seems likely that others will follow.

Dealer Arrangements at the Show

IN TWO WAYS the dealer will find this year's New York show different from its predecessors. The differences are minor, it is true; the show lasts eight days instead of seven, and instead of a button to wear in his buttonhole as a means of identification the dealer will carry a metal pocketpiece about the size of a half dollar. They are ornamental and will make nice souvenirs. The pocket-pieces for exhibitors will be similar but of a different color.

Arrangements for caring for dealers at the show will not differ greatly from those of preceeding shows; the dealer who has been through a Grand Central Palace show once will feel like an old stager as he goes through this year; the routine is much the same—but the show, the decorations and everything else are new and original.

About ten days before the show was due to open Manager Samuel A. Miles sent out 20,000 invitations to dealers. These carry with them a card which the dealer is asked to fill out and present at the Palace in order that he may be given free admission and dealer privileges.

This card calls for all sorts of data as to who the dealer is, what he sells and where he is located. But one member of any dealer firm is eligible. With this card properly filled out the dealer presents himself at the dealers' bureau at the right of the main entrance; the card is filed, the dealer is given his pocket-piece and is admitted.

Each time he leaves the show thereafter he shows the pocket-piece and gets a return ticket, leaving, of course, through a dealers' gate. When he returns he surrenders the ticket and shows his pocket-piece. This pocket-piece becomes a close companion.

If a dealer did not happen to receive an invitation to the show and if no other member of his firm were invited, he may secure admission by producing his car sales contract or some other equally convincing document and establishing his status as a member of the trade.

The Dealers' Bureau will not open the first day. It will not open until Monday, because few dealers attend before that date. The biggest dealer days are Tuesday and Wednesday.

The show will open at 2 p. m., Friday, Dec. 31, and will open thereafter at 10 a. m. It closes at 10:30 p. m. It will be open New Year's day, but not Sunday. The New Year's opening is more or less an experiment. It was done years ago but has not been tried recently. An information bureau will be maintained at the left of the main entrance.

As usual, the elevators run UP only. There are wide stairways for coming down, and the management evidently believes that a good way to see the show is to ride up and walk down.

About 2,000 dealers are expected this year. Each year there is a slight increase over the preceding year, and the number last year was about 2,000. The Chicago show last year drew 1,800.

MEN YOU WILL MEET AT THE SHOW

Old
Friends



New
Acquaintances

Abbott—Waldorf-Astoria—*D. L. Gardiner, Direc. of Sales; *F. E. Sangbush, Sales Mgr.; C. L. Lewis, Pres.; M. J. Hammers, Vice-Pres. and Direc. of Eng.; F. C. Hull, Vice-Pres. and Direc. of Purchases; D. E. Perry, Fact. Mgr.; J. J. Gardiner, Dir. of Adv.; A. W. Gardiner, Secy.; R. P. Hull, Treas.; B. D. Neal, Chicago Branch Mgr.; C. W. Butler, Exper. Eng.

Allen—E. W. Allen, Pres.; W. O. Allen, Genl. Mgr.; J. E. Wright, Sales Mgr.; L. A. Sommer, Factory Mgr.; R. G. Ewell, Adv. Mgr.; W. A. Stewart, N. Y. dealer; W. P. Mallon, E. field supervisor; A. L. Lyle.

Apperson—Biltmore—Elmer Apperson, Pres. and Genl. Mgr.; Edgar Apperson, Secy. and Treas.; *T. E. Jarrard, Vice-Pres.; *J. H. Newmark, Adv. Mgr.

Auburn—Cumberland—*J. I. Farley, Sales Mgr.; C. A. Bonniwell, Asst. Sales and Adv. Mgr.; M. Eckhart, Pres.; F. P. Sears, Treas.

Bell—E. T. Gilliard, Engr.

Cadillac—Astor—*E. C. Howard, Sales Mgr.; *L. McNaughton, Asst. Sales Mgr.; W. C. Leland, Genl. Mgr.; C. B. Chandler and J. O. Harris, Dist. Rep.; E. C. Garland, Mgr. Tech. Dept.; K. P. Drysdale, Adv. Mgr.

Case—Waldorf Astoria—*R. D. Huntley, N. Y. Branch Mgr.; Frank K. Bull, Pres.; W. W. Ramsey, Sales Mgr.

Chalmers—Biltmore—*F. B. Willis, *L. E. Blocker, Gail Murphy, Adv. Mgr.; C. J. Baker, Publicity Mgr.

Chandler—Biltmore—*C. A. Emise, Sales Mgr.; *Sid Black, Asst. Sales Mgr.; *W. G. Clay, Asst. Sales Mgr.; J. V. Whitbeck, Chief Eng.; J. R. Hall, Fact. Supt.; C. A. Carey, Pur. Agt.

Chevrolet—M. B. Lahey, L. D. Haas, W. C. Durant, W. C. Sills, A. B. C. Hardy.

Cole—Biltmore—*S. J. Kuqua, *C. P. Henderson, *R. P. Henderson, *J. J. Cole.

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Dorris—Will not exhibit. Mr. Dorris will stop at the Knickerbocker.

Empire—Astor—*F. A. Babcock, Sales Mgr.; *D. J. Barrier, *E. L. Baker, Sales Rep.; Louis Schweitzer, Eng.; Tom O. Jones, Adv. Mgr.

Fiat—City Club, 55 West 44th street—*H. T. Clinton, Sales Mgr.

Franklin—Manhattan—*C. H. Rockwell.

These are the manufacturers who will attend the New York Show and the hotels they will make headquarters. The asterisk (*) indicates the men delegated to transact business with dealers.

Herff-Brooks—Astor—*Herbert Herff, *F. C. Carter, George Herff, R. H. Matthius, Warren Clements, Harry Land.

Hupmobile—Biltmore—*Lee Anderson, Sales Mgr.; *H. E. Westerdale, Asst. Sales Mgr.; *J. E. Fields, Direc. of Service; *R. D. Heartz, Mgr. Sales Pro.; Frederick Dickinson, Asst. Adv. Mgr.; J. Walter Drake, Pres.; J. R. Drake, Vice-Pres.

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Kearns—Imperial—S. W. Schooley, Vice-Pres. and Sales Mgr.; *M. C. Kearns, Pres.

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Moon—*E. J. Moon, Sales Mgr.; Stewart McDona-ld, Vice-Pres.

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National—Vanderbilt—*George M. Dickson, *W. G. Wall, *J. M. Clarke, *F. J. Manning, *Cas-sius F. Baker, *W. H. Stevens, *N. H. Gil-man, *L. S. French.

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Paige—Vanderbilt—*H. M. Jewett, Pres.; H. Krohn, Sales Mgr.; F. L. Jewett, Asst. Sales Mgr.; H. R. Stewart, I. O. Angier, H. E. Slagle, A. L. McCormick, W. H. Dickinson, F. E. Skeetop, Dist. Rep.

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Sterling—*Edward J. Adelson.

Touraine (Vim)—McAlpin—*C. E. Wheeler, N. E. Dist. Mgr.; *Evans Church, H. B. Larzelere, Wayne W. Light, T. E. Cathcart.

Velie—Claridge—*George H. Lloyd, Sales Mgr.; *G. W. Garland, N. Y. Dist.; C. B. Rose, Chief Eng.; H. T. Wheelock, Adv. Mgr.

Westcott—Biltmore—*H. P. Mammen, *E. H. Lilcrest, *H. H. Brehm, *L. H. Allen.

White—Astor—*J. S. Hathaway, N. E. Mgr.; *R. H. Johnston, N. Y. Mgr.; *J. D. Howley, Phila. Mgr.; *George F. Russell, S. E. Mgr.; *J. E. Huggins, So. Mgr.; Newell Lyon, N. Y. State Mgr.; *J. Rathbun, Foreign Mgr.; Windsor T. White, Pres.; W. C. White, Vice-Pres. and Sales Mgr.; James A. Harris, Jr., Adv. Mgr.

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Adamson Mfg. Co.—McAlpin—*J. C. Milsom, *G. A. Steinhauser.

J. Alexander Mfg. Co.—*A. S. Alexander.

American Bronze Co.—Astor—*John W. Watson, Pres.; *M. L. Tooker, Adv. and Sales Mgr.; M. C. Dettman, Secy.-Treas.

Armstrong Cork Co.—Engineers Club—*C. H. Young, *J. M. Kealley.

Asch & Co.—*B. M. Asch, Pres.; *Leonard White, Secy. and Treas.; *Montross J. Lydecker, *Eduard Wallack.

Barley Mfg. Co.—Knickerbocker—*A. C. Barley, *P. J. Eubanks, *L. Davis, *L. C. Mulford, *H. Earl, *W. B. Hite, C. E. Stephenson.

Bosch Magneto Co.—*Otto Heins, Pres.; *G. Jahn, Treas.; *A. H. D. Altree, Vice-Pres.; *W. Fetherston, Asst. Sales Mgr.; *A. H. Bartsch, Adv. Mgr.; *B. W. Kliersath, Chief Eng.; *L. Carlton, Asst. Chief Eng.; *G. Lang, Eng.; *B. R. Miller, San Francisco Mgr.; *F. D. Norman, Chicago Mgr.; *M. Tost, Detroit Mgr.; A. J. Poole, N. Y. Mgr.

Boston Blacking Co.—Prince George—*C. C. Swett.

M. K. Bowman-Edson Co.—*M. Edson, *F. A. Heath.

Brilliant Products Corp.—Park Row Bldg.—*C. S. Trowbridge, Mgr.; *Arthur Zimmerman, W. J. Ocheltree, Secy.; Henry E. Holste, Fact. Supt.

Wm. H. Brown—Cornell Club—*A. F. Davis, *R. E. Taylor, *W. H. Brown.

Brown-Lipe Gear Co.—Waldorf-Astoria—*Thomas J. Wetzel, *K. Franklin Peterson, *L. D. Bolton, *W. F. Hirst, *J. Otis Pierce, H. W. Chapin, A. T. Brown, W. C. Lipe.

Brown-Lipe-Chapin Co.—Waldorf-Astoria—*H. W. Chapin, Genl. Mgr.; S. H. Cook, Sales Mgr.; D. D. Ormsby, Eng.

Brunner Mfg. Co.—Flanders—*George L. Brunner, Genl. Mgr.; *D. G. Caywood, Sales Mgr.; H. S. Atherton.

The Buda Co.—Biltmore—*J. I. Brandenburg, *G. G. Brandenburg, *L. M. Viles, Treas.

Edward G. Budd Mfg. Co.—Belmont—*Hugh L. Adams, Vice-Pres. or *B. M. Pheatt, Asst.; Edward G. Budd, Pres.; W. B. Read, Secy.-Treas.; Joseph Ledwinka, Designer; L. I. Heintz, Wks. Mgr.

Byrne, Kingston & Co.—Martinique—*J. P. Grace, Chas. T. Byrne, Vice-Pres.; J. W. Johnson, Secy. and Treas.; Wm. E. Kemp, Eastern Sales Rep.; W. H. Breedlaw.

F. S. Carr Co.—Biltmore—*W. B. Rood, V. C. Cramer, J. S. Beatty, J. R. George.

Celfor Tool Co.—Belmont—*R. J. Burrows, *E. C. Mogford, Scott D. Blanchard, E. B. Ross.

Champion Ignition Co.—McAlpin—*Albert Champion, H. R. Joyce, B. D. Taliaferro.

Cleveland Worm & Gear Co.—Woodstock—*C. F. Fitzpatrick, C. W. Fitzpatrick, D. Fitzpatrick, F. M. Gregg, L. D. Caufield.

Events of the Week

Dec. 30-31—Bosch Magneto Co.—Distributors' convention. Dec. 30—Evening banquet at Reisenweber's, Eighth avenue and 58th street. Dec. 30—Selling luncheon, noon, advertising offices.

Dec. 31—Cole—Dealers' meeting at Colt-Stratton salesrooms, Broadway and 57th street.

Jan. 3—A. A. A.—Dinner (evening) to Chairman Richard Kennerdell of the Contest Board of the A. A. A.; Biltmore.

Jan. 4—National Automobile Chamber of Commerce—Waldorf-Astoria; annual banquet, evening.

Jan. 4—Chalmers—Noon luncheon at Churchill's, Broadway and 48th street.

Jan. 4—Velie—Dealers' meeting, 9 a. m., Claridge Hotel.

Jan. 4—Leece-Neville Co.—Meeting, Haynes Automobile Co.'s salesrooms, 1715 Broadway.

Jan. 5—Society of Automobile Engineers—Plaza; annual banquet, evening.

Jan. 5—Motor & Accessory Manufacturers Association—Waldorf-Astoria; 8th annual banquet: 7:30 p. m.

Jan. 5—Motor & Accessory Manufacturers Association—9:30 a. m., Executive Committee meeting, association offices; 10 a. m., Finance Committee, offices; 11 a. m., Board of Directors, offices; 3 p. m., 12th annual meeting, Waldorf-Astoria.

Jan. 6—Motor & Accessory Manufacturers Association—Board of Directors meeting, offices, 2:30 p. m.

Jan. 6—Remington—Dealers' meeting, 1:30 p. m., Cumberland.

Jan. 6—Jeffery—Dealers' meeting in evening.

Jan. 6—Hupmobile—Dealers' business luncheon, noon, Biltmore.

Jan. 6—Paige—Dealers' evening banquet at Healy's, 66th street and Columbus avenue.

Jan. 6—Velie—Dealers' meeting, 9 a. m., Claridge Hotel.

Jan. 6—Electric Storage Battery Co.—Distributors' convention, Hotel Imperial, followed by dinner.

Jan. 6—A. J. Picard & Co.—Dealers' conference and banquet, Cafe des Beaux Arts, 80 West 40th street.

Jan. 7—Emil Grossman Mfg. Co.—Salesmen's convention, Biltmore.

Jan. 7, 8, 10, 11—National Association of Automobile Accessory Jobbers—Astor Hotel; convention; first two days, committee meetings; last two days, general meetings.

Date undecided—Splitdorf Electrical Co.—Branch managers' meeting, Astor.

Date undecided—Mitchell—Dealers' meeting; place undecided.

Date undecided—White—Dealers' meeting; place undecided.

Date undecided—Detroit—Dinner at Biltmore.

Comfort Shock Absorber Co.—Astor—*F. W. Stewart, George B. Bowdren, George G. Baukney.

Compression Inner Tube Co.—Waldorf—*R. L. Whitney, Genl. Mgr.; A. Craig Culbertson; S. S. Bush, Pres.

C. Cowles & Co.—Belmont—*Louis C. Cowles, *M. G. Bottume, *C. A. Tourmier, C. M. Costello, T. T. Welles, F. A. Ford, G. A. Howard.

Curtis Pneumatic Machinery Co.—Belmont—*E. J. Clark, Adv. Mgr.; *A. E. Hoerman, N. Y. Mgr.; *M. Main, Asst. N. Y. Mgr.

Cutting-Armstrong & Smith Sales Co.—Woodstock—*C. D. Cutting, *J. A. Armstrong, *J. H. Graham.

Daly & Co.—Vanderbilt—*W. L. Daly, *J. G. Bayerling, P. C. McFedries, Edward O'Dette, B. J. Collins, J. E. Heinger.

Dann Spring Insert Co.—Knickerbocker—*E. G. Dann, *C. Sklarek.

Dayton Rubber Mfg. Co.—*John A. McMillan, Vice-Pres. and Genl. Mgr.; *E. R. DeTamble, N. Y. Mgr.

Disco Electric Starter Co.—Knickerbocker—*S. W. Elston, Pres.; *M. Hackett, Sales Mgr.; *Sol Meyer, Treas.; *T. G. Murton, Ford Sales Dept.

Double Fabric Tire Co.—Vanderbilt—*A. L. Murray, *R. B. Crane, *C. L. Stebbins.

Dyneto Electric Co.—*G. S. Montfort, *H. D. Wilson, A. E. Doman, C. L. Amos, F. R. Humpage.

E. A. Laboratories—*H. Echhouse, Sales Mgr.; H. H. Knepper.

Eastern Rubber Co.—Herald Square—*Nelson MacReynolds, Secy. and Genl. Mgr.; Walter J. Gans and Eugene C. Cathrall, N. Y. Dist.

Eclipse Machine Co.—Biltmore—*G. A. Christopher, E. J. Dunn, Pres.; L. S. Whittier, Secy. and Treas.; J. C. Ferguson, Genl. Mgr.; A. C. Rice, Sales Mgr.; F. S. Ellett, Chief Eng.; V. Vendix.

Eisenstadt Mfg. Co.—McAlpin—*T. F. Seitz.

Evans Engine Co.—*James M. Evans, *Henry M. Ward.

English & Mersick Co.—Vanderbilt—*Wm. Bryan, *W. A. Evans, *W. R. Ritter.

Essex Rubber Co.—Latham—*R. H. Phillips, Sales Mgr.; *S. Y. L'Hommedieu; *M. Forzly, C. H. Oakley, Pres.; L. M. Oakley.

Ever Tight Piston Ring Co.—Cumberland—*R. Hoehler, Fred Tresch.

Efficiency Oil Corp.—*A. M. Ackerman, L. M. Cahn, Otto M. Mensing.

Emil Grossman Mfg. Co.—*Emil Grossman, *L. M. Schwartz, *A. A. Greene, *A. E. Rosenberg, *Harry G. Wedler, *William Farrans, *R. R. Rosenquist.

Findeisen & Kropf Mfg. Co.—Woodstock—*C. W. Findeisen, Frederick Purdy.

Fitzgerald Mfg. Co.—*J. P. Hutchins, Sales Mgr.; T. J. Fitzgerald, M. F. Fitzgerald.

J. Rogers Flannery & Co.—McAlpin—*Ethan I. Dodds, Cons. Eng.

Peter A. Frasse & Co.—417 Canal street—*Mr. Catey and *Mr. Miles, chains; *Mr. Hager and *Mr. Moore, tubes; *L. Brien and *Mr. Serviss, steel; Mr. Harris, Buffalo Branch; Mr. Newman, N. E. Rep.

Freyer-Auster Co.—McAlpin—*Frederick R. Boynton, Charles H. Freyer, Pres. and Genl. Mgr.

The Fulton Co.—*E. M. Lloyd, Geo. Harding, Eng.; F. C. Reeder, Eng.

Guide Motor Lamp Mfg. Co.—Wallick—*H. J. Monson, *J. D. Kauffmann, *B. Hengst, *W. L. Marsh, *Wm. F. Persons.

Garford Mfg. Co.—Manhattan—*R. M. Allen, Mgr. Accessory Dept.; *A. B. Smith, *W. H. Scott, R. H. Mauson, Chief Eng.

Gates Mfg. Co.—Biltmore—*F. E. Gates, Pres.; *W. H. Brinkerhoff, *J. D. Ringrove.

- General Bakelite Co.—*H. S. May, Mgr.; *H. Swan, Sales Eng.; L. H. Backeland, Pres.; W. S. Gordon, Sales Eng.
- Globe Machine & Stamping Co.—Astor—*R. B. Dangeleisen, *J. F. Goodrich.
- Gray & Davis, Inc.—Waldorf and Vanderbilt—*William Gray, Pres.; *R. W. Harris, Mgr. Ford. Dept.; *C. O. Sacks, Adv. Mgr.; *D. Henry Elkins, Lamp Dept.; *Frank Gallagher, *Vernon W. Collamore, *A. G. Haskell, *E. F. Wackwitz, Eng. Dept.
- L. P. Halladay Co.—Woodstock—*L. P. Halladay, *W. J. Heiniche, *B. L. Gray.
- Harris Oil Co.—Belmont—*H. A. Gannt, *W. L. Larath, *Geo. L. Munroe, *John M. McKenney, Benj. S. Terry, Pres.; George F. Heywood, Secy.
- Hartford Clock Co.—Manhattan—*W. H. Greenleaf, Pres. and Mgr.; *F. McElroy, Sales Mgr.; Louis Stoner, Treas.; H. W. Ingle, Secy.; H. W. Mumper, Vice-Pres.
- Hartford Machine Screw Co.—*P. B. Genger, Detroit Mgr.; *H. E. Penfield, N. Y. Mgr.; *J. W. Beardsley, Sales Agt.; P. B. Gale, Vice-Pres. and Genl. Mgr.; F. S. Thompson, Eng.; J. Nolan, Pur. Agt.
- Hartford Suspension Co.—*E. R. Waterman, Sales Mgr.; A. Waterman, Genl. Mgr.; E. V. Hartford, Pres.
- Robert H. Hassler, Inc.—*E. S. Fouts, Sales Mgr.
- Hayes Mfg. Co.—Biltmore—*H. J. Hayes, Pres.; *E. D. Emmons, Sales Mgr.; Harry L. Bill, Genl. Mgr.
- John O. Heinze Co.—Belmont—*J. O. Heinze, Chief Eng.; *J. T. Boone, Elec. Eng.; *H. C. Anderton, Sales Dept.; Wm. Pflum, Pres. and Genl. Mgr.; F. G. Reid, Eff. Eng.; J. F. Morgal, Prod'n Eng.
- Hill Mfg. Co.—*Robert R. Hill, *B. T. Hill, *Chas. S. Vogell, J. W. Landers, W. P. Davidson.
- Holt Welles Co.—*E. H. Stickles; Calvert Halt, Treas.; Arthur B. Browne, Consult. Eng.
- Houpt Machine Co.—*H. J. Houpt, *N. W. Durnin, E. G. Cunningham, A. Boudreau.
- Humboldt Machine & Stamping Co.—*George R. Hall, *J. Mendel, *P. B. Mendler, *S. A. Samuels, A. E. Aitken, Pres.
- Hydraulic Pressed Steel Co.—*Orrel A. Parker, O. P. Stehn, Genl. Sales Mgr.; J. H. Foster, Vice-Pres. and Genl. Mgr.; J. E. Maloney, Asst. Sales Mgr.
- Interstate Electric Co.—Biltmore—*Percival Stern, Pres.; Sol Leopold.
- Jay & Dee Specialty Co.—*E. K. Jones, F. T. Wentworth.
- Kellogg Mfg. Co.—Biltmore—*J. F. Weller, Vice-Pres. and Secy.; *Mortimer Anstice, Treas.; George W. Kellogg, Pres.
- Kokomo Electric Co.—Martinique—*J. P. Grace, C. T. Byrne, Pres.; W. E. Kemp, N. Y. dealer.
- Atwater Kent Mfg. Wks.—Biltmore—*H. E. Rice, Sales Mgr.; *H. L. Carlisle, *C. L. Fish, A. Atwater Kent, W. J. Little, R. T. Eaton.
- K-W Ignition Co.—Biltmore—*C. Albracht, Sales Mgr.; *R. H. Bechtol, *O. J. Shatta, Serv. Mgr.; R. J. Eisenman, J. A. Williams, Pres. and Eng.
- Laidlaw Co.—Biltmore—*W. R. Laidlaw, *H. T. Strong, *J. H. Johnson, *W. R. Sweetland, *H. D. Cottell, H. W. Davis, E. A. Early, L. J. Leiser, J. G. Gavett, S. B. Lord.
- Lane Bros. & Co.—Cumberland—*Silas Lane, Secy.; *Chas. H. Laird, Ja., Geo. Lane, Vice-Pres. and Treas.
- Leece-Neville Co.—Astor—*George S. Cole, Genl. Mgr.; B. M. Leece, H. C. Branch, A. A. Skinner.
- Light Mfg. & Foundry Co.—McAlpin—*E. S. Fretzand, *H. W. Berroth, E. R. Cassel, F. C. Morrison, W. H. Sackman, Geo. McC. Strohl.
- Lipman Air Appliance Co.—*C. E. L. Lipman, *W. W. Robinson, *H. H. Knepper.
- F. W. Mann Co.—Woodstock—*R. S. Kimball, Supt.
- Manzel Bros. Co.—Imperial—*Robert C. Renner, H. J. Manzel.
- McQuay-Norris Mfg. Co.—Astor—*C. L. Derickson, Louis A. Safford, R. E. McQuay, A. J. Mummert.
- Morse Chain Co.—*F. C. Thompson, *F. L. Morse, Pres. and Treas.; F. C. Bigelow and W. W. Bertram, N. Y. dealers.
- A. R. Mosler & Co.—Astor—*A. R. Mosler, *W. L. Liebling, *J. W. Fischer, Jr., *H. A. Wattensheit, *O. H. Wachtel, *F. W. Eisle, *Miss Adele Tanewald.
- Motor Appurtenances Corp.—*George Fritz, *E. A. Vanderpoel, Fred H. Thompson.
- Motor Necessity Co.—Astor—*M. A. Levy, Mr. Martin, Mr. Fisher.
- Motor Compressor Co.—*G. J. Spohres.
- Motor Products Co., Inc.—McAlpin—*Richard K. Greene, Pres.; *Joseph A. Hudson, R. D. Whitton, M. R. Whitton, E. J. Savahe, R. E. Manscan.
- L. J. Muttly Co.—Belmont—*L. J. Muttly, Pres.; *E. P. Murray, Frank B. MacArthur, Charles J. Nickerson.
- New Era Engineering Co.—*Winthrop Burdick.
- New Era Spring & Specialty Co.—Park Avenue—*Smalley Daniels, *W. B. Dean, *J. D. Livenessparger, H. P. Rhodes, L. Bennett, J. Esserman, H. W. Badenhausen.
- Nokolyd Signal Co.—*Edward W. Stern.
- Nonpareil Horn Mfg. Co.—*Carl Kauffman, *Lincoln T. Kauffmann, R. L. Jones, C. P. Brown.
- Oakes Co.—Vanderbilt—*W. H. Oakes, *F. E. Glass, *Warren D. Oakes.
- Perkins Campbell Co.—Manhattan—*M. D. Campbell, Genl. Mgr.; *C. W. Stricker, Mgr. Auto. Dept.; *J. P. Mills, *J. W. Crider.
- A. J. Picard & Co.—*Leo Picard, E. S. Morrison, R. A. Picard, E. J. Smith, C. H. Frazee.
- Pittsburgh Electric Specialties Co.—*Garrett F. Hom, Dist. Sales Mgr.; Joseph T. Roffy, Chas. Resch.
- Pittsburgh Model Engine Co.—Knickerbocker—*L. M. Railsback.
- Pontiac Chassis Co.—Astor—*R. A. Palmer, *W. D. Paine, C. M. Van Auker, Eng.
- Price Electric Devices Co.—McAlpin—*W. G. Ellison, *F. F. Freed, *E. A. Eahle, *J. R. Price.
- Pyrene Mfg. Co.—*J. P. Maloney.
- P. Reilly & Son—*J. H. Leinen, *Wm. McEvoy, James E. Reilly, Wm. M. Holden.
- Royal Equipment Co.—*R. Everett, Sales Mgr.; *J. A. Farrell, Asst. Sales Mgr.; *R. B. Davis, N. Y. Rep.; *A. P. McAleese, Pittsburgh Rep.; *E. A. Wales, Chicago Rep.; *F. George Walker, Detroit Rep.; *H. G. Sanborn, N. E. Rep.; *Irving Bennett, St. Louis Rep.; S. S. Simpson, Pres.; H. Simpson, Prod. Mgr.; H. G. Farwell, Chief Eng.
- J. H. Sager Co.—Park Avenue—*J. H. Sager, *C. J. Iven.
- Schwarz Wheel Co.—Knickerbocker—*S. Vance Lovenstein, Pres. and Genl. Mgr.; Charles Lefevre, Asst. Mgr.
- C. A. Shaler Co.—McAlpin—*Robert B. Dunlap, *R. E. Malone, E. B. Carroll.
- Sharp Spark Plug Co.—Martinique—*Wm. E. Hooker, Ter. Mgr.; J. F. Johnson, Pres.; J. S. McKenney, Sales Mgr.; G. C. Spaulding, W. A. Koehler.
- Sparks-Withington Co.—Astor—*Messrs. Sparks, Withington, Rogers and Chandler.
- Spitler Puncture Plug Co., Inc.—*B. W. Murray, *O. J. Rohde, C. W. Curtis, Genl. Mgr.; M. W. Bartlett, Sales Mgr.; D. R. Walls, Adv. Mgr.
- Springfield Metal Body Co.—Biltmore—*E. W. McGookin, Dir. of Sales; Henry Goodman, N. Y. Sales Mgr.; Mr. Boosch, Mr. Stewart.
- Standard Roller Bearing Co.—*Robert S. Woodward, Jr., *Frank W. Germane, Asst. Genl. Mgr.; *Chas. H. Machen, Sales Mgr.; *Arthur N. Goodfellow, Detroit Mgr.; *Louis M. Watkin, Jr., N. Y. Mgr.
- Standard Thermometer Co.—Manhattan—*S. H. Feigley, Sales Mgr.; *W. P. Reed, *C. A. Atwood, *S. G. Whittaker, S. C. Lord, Pres.; F. W. Witcher.
- Standard Woven Fabric Co.—Manhattan—*T. J. Daley, Sales Mgr.; *Thos. Lang, A. G. Burdick, E. E. Waite, R. D. Northrop.
- F. W. Stewart—Astor—*F. W. Stewart, W. S. Graffam, Geo. Bowdren, Geo. Bankney.
- Stewart-Warner Speed. Corp.—*W. J. Zucker, Sales Mgr.; C. B. Smith, Genl. Mgr.
- Straus & Buegeleisen—*E. Buegeleisen, *Leo Straus, *E. G. Biddle, Boston Mgr.; *T. M. White and *J. T. Wickes, N. Y. Mgrs.; *G. G. Weidener, Philadelphia Mgr.; *W. H. Moore, Buffalo Mgr.; *S. S. Douglas, Detroit Mgr.; *Frank J. Morton, Chicago Mgr.
- Stromberg Motor Devices Co.—Biltmore—*F. E. Tucker, N. Y. Branch Mgr.; *M. M. Whipple, Boston Branch Mgr.; *L. F. Freiberg, Eastern Eng.
- G. T. Sutterley & Co.—Knickerbocker—*Lewis J. Stern, A. S. Valentine.
- Swedish Crucible Steel Co.—Cumberland—*Nels L. Olson, Pres.; *Samuel Christensen, Sales Mgr.; *C. F. Jensen.
- J. H. Tonneau Shield Co.—*Harry B. Abrams, Sales Mgr.; *Thomas B. Wishet, Pres.
- Turner Brass Works—Woodstock—*W. F. Pagel, Secy.; Chas. E. Reckitt, Pres.
- U. S. Light & Heating Corp.—Biltmore—*C. C. Bradford, *E. F. Oates, *L. N. Talkes, *R. B. Clark, *J. A. White, J. Allan Smith, A. H. Ackermann, C. A. Mudge, T. Zimmerman, T. R. DuBois.
- United States Air Compressor Co.—Empire—*W. C. Smith, *Geo. A. Hunter, R. L. Bacher, Treas.
- Utility Products Co.—*E. A. Roure.
- Van Sicklen Co.—Biltmore—*N. H. Van Sicklen, Sr., *C. F. Van Sicklen, *F. B. Wood.
- Veeder Mfg. Co.—*D. J. Post, *C. B. Smith, *W. E. Waldo.
- Voorhees Rubber Mfg. Co.—Broadway Central—*J. O. Caldwell, *K. B. Spencer, *Messrs. Archer, Corwin and Housley.
- Wasson Piston Ring Co.—*Messrs. Lake, Holcombe, Mills and Booker.
- Wayne Works—Astor—*Warren Clements.
- Weaver Mfg. Co.—*Chas. F. Hodgson, Secy.; *Ralph Waldt, N. Y. Rep.; *J. F. Chumbley.
- Weston Electric Instrument Co.—*L. C. Nichols, H. R. Goodwin, C. P. Frey, J. R. Rockwood, Caxton Brown, Stanley Brown.
- Westinghouse—Biltmore—*G. B. Griffin, *G. H. Lewis, *S. D. Levings, *S. L. Blackburn, *M. B. Hauxhurst, *N. W. Hanks, *A. E. Jackman, *S. F. Dupree, F. W. Young, J. C. McQuiston, W. S. Roberts, K. L. Camp, Frank Conrad, J. M. Hipple, W. A. Dick, C. E. Wilson, J. S. Kinney, D. B. Kunkle, P. C. Ritchie, H. S. Johnson, H. W. Beaumont.
- Willard Storage Battery Co.—Astor—*F. S. Gasaway, *H. F. Bentley, Messrs. Willard, Norberg, Burrill, Cook, Nightingale, Hillman and Gardner.
- Wheeler & Schebler—Astor—*Geo. T. Briggs, Sales Mgr.; D. F. Wheeler, J. C. Nichols, N. J. Connell.
- White & Bagley Co.—Woodstock—*H. P. Bagley, *W. L. Covey, *I. R. Whittemore, *Robert I. Sim, W. J. Masters, Samuel F. Shapiro, F. J. Dansingburg, F. R. Connell.
- Zenith Carburetor Co.—Claridge—*A. H. Doolittle, Sales Mgr.; V. R. Heftler, Pres.; R. H. Taylor, Sales Eng.

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Classification of Bodies at New York Show

The Number of Types Produced by Each Maker Tabulated

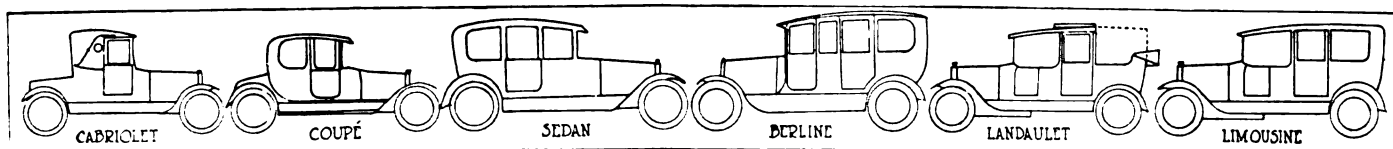
	Open Bodies							Cbrlt	Coupe	Sedan	Lim	Lndlt	Brln
	2- Pass	3- Pass	4- Pass	5- Pass	6- Pass	7- Pass							
Allen Motor Co.....	1	..	..	1	..	..	..	..	..	..	..	..	..
Apperson Bros. Auto Co..	..	..	2	1	..	2	..	..	..	..	..	..	..
Argo Motor Co.....	1	..	..	1	..	..	..	..	..	..	..	..	..
Auburn Automobile Co..	1	..	..	2	..	1	..	..	..	..	..	..	..
Briscoe Motor Co.....	..	2	..	2	..	..	..	..	..	..	..	..	..
Buick Motor Co.....	2	..	..	1	..	1	1	..	1	..	..	..	..
Cadillac Motor Car Co..	1	..	..	..	1	1	1	1	1	1	1	1	1
Chalmers M. Car Co.....	1	..	1	..	3	1	1	1	1	1	1	1	1
Chandler M. Car Co.....	1	..	..	..	1	..	1	..	..	..	..	..	..
Chevrolet Motor Co.....	1	..	..	2	..	..	..	..	..	..	..	..	..
Cole Motor Car Co.....	1	..	1	..	..	1	..	1	1	1	1	..	..
Consolidated Car Co.....	2	..	1	..	..	2	..	..	1	..	..	..	..
Crow Motor Car Co.....	..	..	..	1	..	..	..	1	1	..	..	..	..
Davis M. C. Co., Geo. W..	..	..	1	1	..	1	..	..	..	..	..	..	..
Dodge Bros.	1	..	..	1	..	..	..	..	..	..	..	..	..
Empire Automobile Co..	1	..	..	2	..	..	..	..	..	..	..	..	..
Enger Motor Car Co..	1	..	..	1	..	..	..	..	..	..	..	..	..
F-I-A-T Co.	2	2	..	2	..	2	..	..	..	2	2	2	2
Franklin Mfg. Co., H. H..	1	..	1	..	..	..	1	1	1	..	..	1	1
Grant Motor Co.....	1	..	1	..	..	1	..	..	..	..	..	..	..
Haynes Automobile Co..	1	..	1	..	1	..	..	..	..	..	..	..	..
Hudson Motor Car Co..	1	..	..	..	1	1	1	1	1	1	1	1	1
Hupp Motor Car Co..	1	..	..	1	1	..	..	1	1	1	1	..	..
Inter-State M. Car Co..	1	..	..	1	..	..	..	..	..	..	..	..	..
Jackson Automobile Co..	..	..	2	..	1	..	..	..	..	..	..	..	..
Jefery Co., Thomas B..	1	..	2	..	1	..	..	2	2	2	2	2	2
King Motor Car Co.....	1	..	2	..	1	..	..	1	1	1	1	1	1
Kissel Motor Car Co.....	..	2	3	..	1	..	2	2	2	2	2	2	2
Lexington-Howard Co..	1	..	1	1	..	..	..	..	..	..	..	..	..
Locomobile Co. of Amer.	..	..	..	2	2	2	..	..	..	2	2	2	2
Lozier Motor Co.....	1	..	..	..	1	..	..	..	..	..	..	..	..

	Open Bodies							Cbrlt	Coupe	Sedan	Lim	Lndlt	Brln
	2- Pass	3- Pass	4- Pass	5- Pass	6- Pass	7- Pass							
Maxwell Motor Co.....	1	..	..	1	..	..	1	1	1	1	1	1	1
McFarlan Motor Co.....	1	..	2	1	1	2	1	..	1	1	1	1	1
Mercer Automobile Co..	2	..	1	..	1	..	..	..	..	..	..	..	..
Metz Co.	1	..	..	1	..	..	..	..	..	..	..	..	..
Mitchell-Lewis Mot. Co..	..	2	..	2	..	1	1	1	1	1	1	1	1
Moline Automobile Co..	2	..	..	2	..	1	..	..	1	1	1	1	1
Moon Motor Car Co.....	2	2	..	1	..	1	..	1	1	1	1	1	1
Mutual Motors Co.....	1	..	..	1	..	..	..	..	..	..	..	..	..
National Mot. Veh. Co...	3	4	1	3	..	..	3	3	3	3	3	3	3
Nordyke & Marmon Co..	1	1	1	1	..	1	..	..	..	..	..	..	..
Oakland Mot. Car Co...	3	..	..	2	..	1	..	..	..	..	..	..	..
Olds Motor Works.....	..	2	..	2	..	..	..	2	2	2	2	2	2
Owen & Co., R. M.....	..	1	..	..	1	..	1	1	1	1	1	1	1
Packard Motor Car Co..	1	..	..	2	..	2	2	2	2	2	2	2	2
Paige-Detroit M. C. Co..	..	..	1	..	1	..	..	..	..	..	..	..	..
W. A. Paterson Co.....	..	1	..	1	..	1	..	..	..	..	..	..	..
Pathfinder Co.	1	1	1	1	2	..	..	..	..	..	..	..	..
Peerless Motor Car Co..	1	..	..	..	1	..	..	1	1	1	1	1	1
Pierce-Arrow M. C. Co..	3	3	3	3	3	3	3	3	3	3	3	3	3
Premier Motor Mfg. Co..	1	1	1	..	1	..	..	..	..	..	..	..	..
Pullman Motor Car Co..	1	1	..	2	..	..	1	1	1	1	1	1	1
Regal Motor Car Co...	3	..	3	..	..	..	..	..	..	..	..	..	..
Reo Motor Car Co.....	1	..	1	..	1	..	..	..	..	..	..	..	..
Saxon Motor Co.....	1	1	..	1	..	..	1	1	1	1	1	1	1
Scripps-Booth Co.	1	..	..	..	..	1	..	1	1	1	1	1	1
Standard Steel Car Co..	2	..	1	..	2	..	..	..	..	..	..	..	..
F. B. Stearns Co.....	..	..	1	..	2	..	..	..	..	..	..	..	..
Studebaker Corp.....	2	2	..	..	2	2	1	1	1	1	1	1	1
Stutz Motor Car Co.....	2	..	2	..	1	..	..	..	..	..	..	..	..
Sun Motor Car Co.....	1	..	..	1	..	..	..	..	..	..	..	..	..
Velie Mot. Vehicle Co...	..	2	2	1	..	..	..	..	..	..	..	..	..
Westcott Motor Car Co..	2	..	2	..	1	1	..	2	2	2	2	2	2
Willys-Overland Co..	3	..	2	..	1	..	2	2	2	2	2	2	2
Winton Co.	2	2	..	2	2	..	2	2	2	2	2	2	2

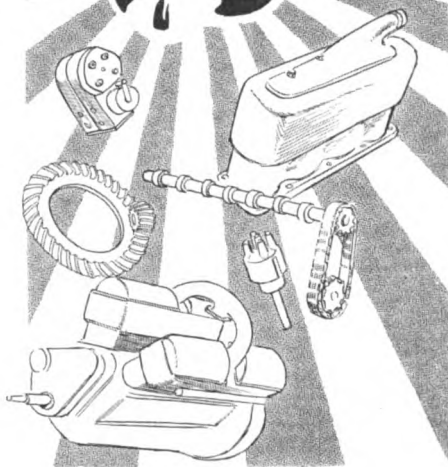
Some Makes That Will Not Be Exhibited at the New York Show

	Open Bodies							Cbrlt	Coupe	Sedan	Lim	Lndlt	Brln
	2-	3-	4-	5-	6-	7-							
	Pass	Pass	Pass	Pass	Pass	Pass							
Arbens Car Co.....	..	..	1	..	..	..	..	..	..	..	..	..	..
Barley Mfg. Co.....	1	..	1	..	..	1	1	..	..	..	..	..	..
Bartholomew Co.....	..	..	1	..	..	..	..	..	..	..	..	..	..
Bell Motor Car Co....	1	..	1	..	..	..	..	..	..	..	..	..	..
Biddle Motor Car Co..	1	..	1	1	..	..	..	..	..	..	..	..	..
Brewster & Co.....	Chassis only; bodies to order.												
Cameron Car Co.....	1	..	1	1	..	..	..	..	..	..	..	..	..
Case T. M. Co., J. I....	1	..	..	..	1	..	..	..	..	..	..	..	..
Commonwealth Mot. Co.	1	..	1	1	1	..	..	..	..	..	..	..	..
Cummins-Monitor Co..	1	..	2	..	..	..	..	..	..	..	..	..	..
Davis Mfg. Co.....	1	..	..	..	..	..	..	..	..	..	..	..	..
Daniels Motor Car Co..	1	..	1	..	1	..	1	1	1	1	1	1	1
Detroit Mot. Car Co..	..	..	1	..	..	..	..	..	..	..	..	..	..
Dispatch Mot. Car Co.	1	..	1	..	..	1	..	1	..	..	..	..	..
Dorris Motor Car Co..	2	..	..	..	2	..	2	2	2	2	2	2	2
Dort Motor Car Co.....	..	..	1	..	..	..	..	..	..	..	..	..	..
Easton Machine Co.....	1	..	1	..	1	..	..	..	..	..	..	..	..
Elkhart Car. & M. C. Co.	1	..	1	..	..	..	..	..	..	..	..	..	..
Farmack Mot. Car Corp.	1	..	1	..	1	..	1	..	..	..	..	..	..
Finley Rob. Porter Co..	Chassis only; bodies to order.												
Ford Motor Co.....	1	..	1	..	..	..	1	1	1	1	1	1	1

	Open Bodies							Cbrlt	Coupe	Sedan	Lim	Lndlt	Brln
	2- Pass	3- Pass	4- Pass	5- Pass	6- Pass	7- Pass							
Herff-Brooks Corp.....	2	..	..	2	..	..	..	..	..	..	..	..	..
Kline Car Corp.....	1	1	..	1	..	..	..	..	..	..	..	..	..
Lenox Motor Car Co..	1	..	..	1	..	..	..	..	..	..	..	..	..
Luverne Automobile Co..	..	..	..	..	..	1	..	..	..	..	..	..	..
Madison Motors Co....	1	..	1	1	..	1	..	..	..	..	..	..	..
Monroe Motor Co.....	2	..	..	..	..	..	..	..	..	..	..	..	..
Pilot Motor Car Co....	1	..	1	3	1	2	..	..	..	..	..	..	..
Pioneer Motor Car Co..	1	..	..	..	..	..	..	1	..	..	..	..	..
Republic Motor Car Co..	..	..	1	..	..	1	..	..	..	..	..	..	..
Ross Automobile Co.....	..	..	..	1	..	1	..	..	..	..	..	..	..
Simplex Automobile Co.	Chassis only; bodies to order.												
Singer Motor Co.....	..	1	1	..	..	1	..	..	..	..	1	1	..
Spaulding Mfg. Co.....	1	..	..	1	..	..	..	..	..	..	..	..	..
Sterling Auto. Mfg. Co.	1	..	..	..	..	..	..	..	..	..	..	..	..
Stewart Motor Corp....	1	..	..	..	1	..	..	..	..	..	..	..	..
Times Square Auto. Co.	2	..	..	1	..	..	..	..	..	..	..	..	..
Trumbull Mot. Car Co..	1	..	..	..	..	..	..	1	..	..	..	..	..
Wayne Works	2	..	2	..	..	..	..	..	..	..	..	..	..
Woods Mobilette Co....	1	..	..	..	..	..	..	..	..	..	..	..	..
White Co.	2	..	1	..	1	..	..	1	1	1	1	1	..



BOMB CENTERS IN MOTOR 1916 CAR DESIGN



**More Unit Power Plants
Block Cylinders Gain
Average Price Is \$1,600
Single Ignition Advances**

**More Cars at \$1,000
Fewer Models Produced
Average Wheelbase Less
V-type Motors Increase**

FOR the first time in the history of the automobile industry, the average price of a five-passenger touring car is less than \$2,000. To be exact, it is just \$400 less. The average price of the 1915 car was \$2,005. But for 1916 the purchaser will get more for \$1,600 than he got last year for over \$2,000.

Coming events cast their shadows before, and though this reduction would seem to indicate that still further reductions may be looked for in years to come, it is too early yet to predict with any degree of accuracy. Suffice it to say that for the present, at least, the dealer in motor cars in 1916 will offer greater value, dollar for dollar, than he has ever been able to offer before.

Engineering Reflected in Price

As significant as is this marked reduction in price, it can be looked upon only as an indication of the great progress which has been made during the past twelvemonth in design and construction. To those who will take the time to analyze the situation, it means that two factors in combination have worked to their direct benefit. More cars will be produced for 1916 than ever before, which of itself would have a tendency to reduce the ultimate cost to the producer; and the individual cost of producing a car has been reduced by better engineering practice and the use of better materials.

Aside from the reduction in price, which constitutes one of the greatest features of the crop of 1916 cars, there are also many other engineering features which stand forth with prominence.

For example, the use of block-cast cylinders has made a noteworthy gain. Of the 119 different makes of cars pro-

duced during 1915, 67.5 per cent were equipped with block-cast motors; compare this with 78.4 per cent of the 108 makes of cars which have block-cast cylinders in 1916. Further, the detachable cylinder head which early last year gave promise of becoming one of the great features of the year then to come, has advanced from a total of 8.5 per cent to a total of 13 per cent.

Single Ignition Is Popular

Another significant trend which is revealed by an analysis of 1916 products is the leaning toward single ignition. Of the new cars, 76 per cent will be equipped with single ignition apparatus, as against 56 per cent the previous year. Of the remainder, 19 per cent will have dual ignition, as against 36 per cent last year, a great drop for this type, and there is a similar drop in the case of double ignition, which fell from 4.55 per cent to 1.8 per cent.

Again, that attention has been centered on those parts of the motor which are of vital concern to the dealer, the garageman and the user, is revealed by the great gain which has been made in favor of lubrication by the combined splash and pressure principle. Last year only 16 per cent of the cars on the market had pressure feed to main bearings with splash troughs for the connecting rods, whereas this year the percentage has been pushed up to 23.35.

Of perhaps greater importance is the tendency toward a wider adoption of the unit power plant. From a census of the 1916 cars it is revealed that some 54 of them will have unit power plants. This is no less than 63 per cent of the 108 makes of car on the market, as against 49 per cent last year. As indicating that this trend gives every evi-

dence of being a permanent one, figures show that the percentages of unit power plants for 1910 to 1916 are: 1910, 10 per cent; 1911, 16 per cent; 1912, 25 per cent; 1913, 34 per cent; 1914, 43 per cent; 1915, 49 per cent.

Vacuum Feed Shows Gain

Another trend which is of direct meaning to the dealer is the gradual adoption of the vacuum principle for feeding gasoline from the tank to the carburetor. This apparatus made its first appearance last year, and it speaks well for it to say that almost at once it was adopted by more than 20 per cent of makers. Yet this year the number who are using it has increased to 53.8 per cent. In short, more than half the makers of cars have adopted vacuum fuel feed for 1916, with its absence of complicated mechanism, its freedom from trouble and its certainty of action.

Spiral Bevel on 58% of Models

Of the other really prominent changes which the new year will usher in, the rise to popularity of the spiral bevel final drive and the increase in the use of chain drive for the timing gear train are particularly noteworthy. Although the spiral bevel, which made its first real appearance last year, was used on but 9.5 per cent of the various makes of cars, it is used this year on no less than 56.8 per cent. Although the helical or spiral gear for driving the camshafts still is far in the lead and is used on some 73 per cent of cars, the use of the chain is making great gains. In 1915 chains were used by but 9.1 per cent of makers. This year the number has almost exactly doubled.

Perhaps the single factor of greatest importance to the dealer is the matter

of price, and in this respect the sale of a 1916 car should be little more than mere recreation, if the sale of cars last year was a mild kind of work, and in years before that was increasingly harder as the recollection of the efforts of those sales grows increasingly hazy.



More than three-fourths of all chassis models have block cylinders

In the matter of a low average price, the year 1916 established a record all its own, and one which is likely to remain long in the memories of those who sell cars. It was in the year 1914 that the high peak in the price curve was reached, the average car that year selling for \$2,635. During previous years the price was \$2,215 in 1910, \$2,560 in 1911, \$2,585 in 1913. The following year, 1915, the price slumped off to \$2,005, almost the direct cause being the regime of increased production activities which spread itself all over the country; and for 1916 the price has come down still another \$405.

This reduction in price has not been brought about by any one factor, however; rather it has been the result of a combination of factors, perhaps the most important of which has been increased production. This, in turn, has required much closer study of production costs, for with the output of factories running well in the thousands, and in a notable number of instances into the hundreds of thousands, the matter of cost per unit has had an all-important bearing in the success or failure of the producer.

Fewer Models Reduce Costs

From this has come the necessity for concentration on engineering problems, and from this in turn has come a reduction in costs which has been directly reflected in the price of the finished car to the user. Still another reason for the reduction has been the marked tendency of makers to concentrate on a single model, or at least on two models, where before they have had from three to five different models. In many cases now, a manufacturer who produces both fours and sixes has so standardized production that a majority of the parts in the two models are interchangeable.

Big production of a few models, in fact, is the true reason for the lower price of the 1916 car. As an example, in 1916 the number of different chassis produced by a single maker was 1.56, which of itself is lower than for any previous year since 1910. The number of chassis per maker was greatest in 1912, when the figure reached 2.17, and this has been steadily dropping year by year as makers realized that efficiency means concentration.

In its turn, standardization has had

no little effect on production figures. Work of this kind rightfully starts with the purchasing department, where it is logical to expect that materials can be purchased cheaper in large quantities than in smaller ones. Further along in the natural cycle of operations, there is the machine work which must be done, and where there are a great number of parts all alike to be machined, the cost per unit naturally is a great deal lower than where the number of units is vastly greater and the number of different processes through which the part must pass correspondingly increases.

Thus, for example, there is the maker of both fours and sixes. If he uses a motor with the same cylinder dimensions for both cars the opportunity presents itself for purchasing almost double the quantity of raw material which eventually will be turned into quite different products, yet the individual operations on the majority of the units in all probability is exactly alike.

Where Automatic Machinery Scores

Standardization, however, makes plain its greatest advantage in the possibility for using automatic machinery which it presents. In many cases it has been found possible to produce parts for the 1916 car which for the 1915 car cost more than 10 times as much. These are parts which heretofore have required a great number of separate operations but which now are turned out almost without the need for human attention.

Still another factor which has been of great importance in the reduction of selling price has been the unification of the power plant. The block-cast cylinder which today is used on more than three-fourths of the cars produced, and the unit power plant, which has steadily gained in popularity until it now is used by two-thirds of all the makers, have each had a powerful influence on cost.

The plain, simple exterior of the modern power plant means far more than mere neatness and accessibility to the dealer and to the ultimate user. It has been one of the big parts of the work which has sliced fully one-fifth off the price of the 1916 car. This unification goes farther than the coupling of engine and gearset and clutch together in one housing; it extends to every last part of the power plant and means the simplification of starting and lighting equipment; the simplification of carburetor attachments; the fine combing of every individual unit so that every unnecessary, or unnecessarily complicated, part is done away with. The simplification of all these car components is but part of the great movement toward the ultimate production of a single, simple, compact, accessible unit.

When a year ago the lowest price six, at \$785, was placed on the market, it was thought that the limit had been

reached. And while no one has as yet gone below this price for a six, other sizes at the same price have appeared, and what is even more startling is that there are now eight-cylinder cars which are selling for but a little bit more—\$950—and the twelves are rapidly scaling down to a figure which a few years ago would not buy even a mediocre six. Below \$1,250 there are now no less than five different eight-cylinder chassis; in the same price classification there are twenty sixes, forty-two fours and one twelve.

Horsepower Now is Lower

Coincident with the reduction in the price of the 1916 car there has come a reduction also in the horsepower and the wheelbase, though the reduction is not by any means in proportion to the down sliding price. The average 1916 car has a horsepower of 28.66, as against 29.97 for 1915, so that the difference is not so very pronounced. As a matter of fact, the trend toward lower horsepowers has been noticeable for the past several years, the highest figure being reached in 1912 and 1913, when it was 33.60. In 1910 the average was 31.5, whence it climbed to 32.7 the next year, and then on to 33.6 in 1912 and 1913, when it commenced to drop off and has shown a steady decline ever since. Thus in 1914 it was down to 33.2—not such a great difference—and in 1915 it had gone down still further, to 29.97.

Wheelbase, on the other hand, was highest in 1915, when the average figure reached 122.19 inches. This year, or rather for 1916, the average figure is 119.5. The figure was lowest in 1910, when it was 112 inches, and from this it climbed through 114 inches in 1911, 121 inches in 1912, 122 inches in 1913, 122.19 inches in 1914, 122.19 inches in 1915, to the present figure of 119.5 inches. The average wheelbase for cars selling for less than \$1,250 was 106 inches in 1915, whereas for 1916 it is well over 110 inches.



Nearly two-thirds of the cars on the market have unit power plants

Although the average horsepower has dropped, the power of cars selling for less than \$1,250 has shown a remarkable gain. Up to 1916 the highest figure was 22 horsepower, this in 1913. In 1915 it had dropped to less than 20, but for 1916 it is higher than ever before, reaching 23.07.

In the price classification between \$1,250 and \$1,999, on the other hand, there has been a slight falling off in power, the figure for 1916 being 28.68, as against 29 a year ago. In the next class—cars selling between \$2,000 and \$2,999—the figure is now 35.73, which

is about the same as last year, and in the \$3,000 class there is a slight gain, the figure being 42 as against 40 a year ago.

Tires, Too, Are Smaller Now

The certain tendency toward the production of lighter chassis is no better made plain than in tire sizes. Taking the average five-passenger car, the average tire size for 1916 is 33 x 4½, a fact which is due in a large measure to the extensive use of the popular 34 x 4 and 32 x 3½ sizes. Tires are smaller now than for any other year of which there is record. In 1910 and 1911 the average size was 34 x 4, and this had climbed to 35 x 4 in 1912. In 1913 there was a further increase to 35 x 4½, the figure being the same for 1914. In 1915 the average went down again to 34 x 4.

As indicating a certain weeding out and concentration, which in turn has had its effect on price, there are now just 108 makers of cars. In 1911 the number of makers was greatest, the figure being 270; the previous year there were 239 and in 1912 this had dropped to 193, and so on down through 156 in 1913, 133 in 1914 and 119 in 1915. So now there are less than half the number of makers that there were five years ago.

Fewer Chassis Models

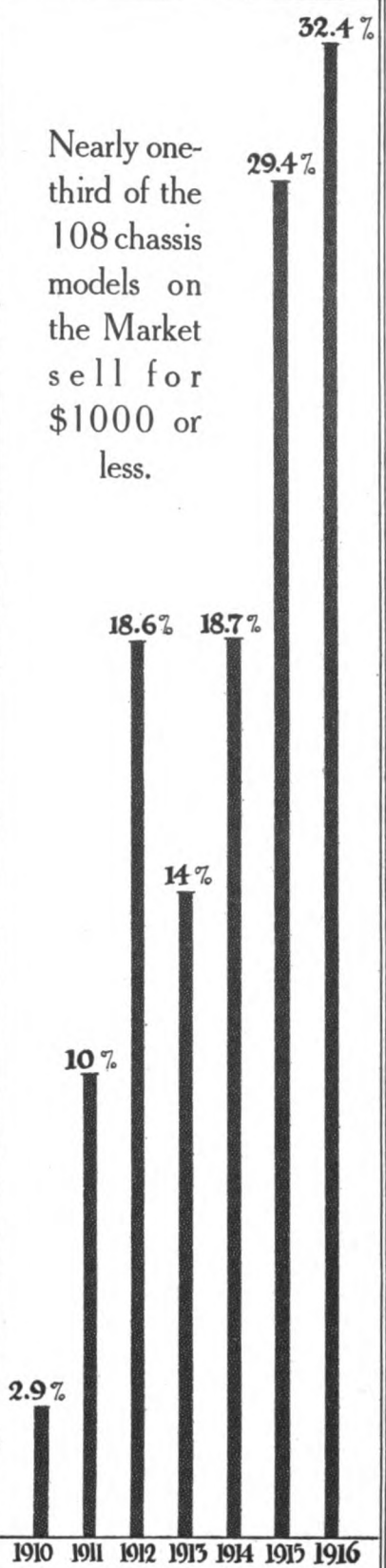
The number of chassis models on the market for 1916 is 169, and since 1911, when the high peak was reached, the number being 393, the figure has been going down at a rate far more rapid than the reduction in the number of manufacturers. This drop in the number of chassis has been pronounced during the past year, for while there are only eleven fewer manufacturers than one year ago, there are some 31 fewer chassis. The drop in the number of chassis in 1914 and 1915 was 36. The trend toward fewer chassis, however, was most marked in the earlier stages, when between the years of 1913 and 1914 there was a decrease of 103 chassis, the figure dropping from 339 to 236.

These things—all of them—are surface indications of the greater value which year by year is being put into cars by their makers. The mere fact that any particular principle in engineering is being adopted by the majority of makers can be taken as proof positive of the soundness of that principle. That which is tried out this year by the few will be adopted next year by the many, provided only that in the test it proves its worth—or rather the lasting qualities of its worth.

Simplified System

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Nearly one-third of the 108 chassis models on the Market sell for \$1000 or less.



The percentage of cars selling at or under \$1,000 has shown a remarkable gain during the past five years. For 1916, nearly one-third of the 108 chassis models on the market come in this class

MOTORS

Block Casting and Unit Power-plants the Feature

THE block casting of cylinders and the unit power plant; the adoption of thermo-syphon cooling on a larger scale than ever before, and the certain movement toward single ignition; a lowering of the piston displacement and horsepower, and the adoption of vacuum feed to the carbureter are the big outstanding features of the trend in motor design for 1916.

Although the horsepower is lower than ever before, the figure being 28.66, it cannot be said that the car of 1916 is any less powerful than its predecessors. For with the lowering of piston displacement there has come a remarkable increase in efficiency, due largely to the higher speeds at which motors now are operated.

Thus, though bore and stroke are less, the average figures being 3.57 x 4.97, as against 3.82 x 5.10 last year, there can be no doubt but that the 1916 motor is more powerful. Insofar as the number of cylinders is concerned, there has been a marked falling off in the number of four-cylinder cars, the percentage of makers producing fours in 1915 being 51.0, as against 39.2 in 1916, and a slightly smaller falling off in the number of sixes, these figures being 47.5 in 1915 and 45.8 in 1916.

Eights and Twelves Push Out Fours

These decreases have been due in a measure to the influx of eights and twelves, though the factor of greatest importance has been the concentration of makers on a single model. Thus, for example, a large number of makers have eliminated the four, this elimination being most noticeable in the class of cars selling between \$1,250 and \$2,000. In this class there are more than twice as many eights as there are fours and more than six times as many sixes as fours. There are fewer fours selling in the neighborhood of \$1,500 now than for many years past.

The genuine feature of the multi-cylinder field, however, has been the altogether astonishing advance made by motors with more than six cylinders. In 1915 there was only 1 per cent of manufacturers producing cars in this class, whereas in 1916 the percentage has climbed to 15.

Stroke-Bore Ratios are Higher

The prediction of the past few years that stroke-bore ratios would increase is being fulfilled. The average ratio last year was 1.33 to 1, whereas in 1916 it is

1.39 to 1. This ratio has been steadily climbing since 1910, when it was 1.03 to 1.

The block casting of cylinders has also shown a noteworthy gain and one which bids fair to increase in years to come. In 1910 only 8 per cent of all chassis models had block cylinders, and this percentage has shown a steady increase by years to 12, 18, 29, 39, 67 and 78.4 per cent. At present more than three-fourths of all the cars on the market have block cylinders.

It was to be expected that unit power plant construction would go hand in hand, so to speak, with block casting, and this has been so. As far back as 1910 the percentage was but 10, and this has increased steadily until now the percentage is 63.5. Similarly, three-point suspension shows a tendency to increase.

Thermo-Syphon More Popular

Aside from the plainly marked effort toward simplicity revealed by the block casting of cylinders and the unit power plant, there are not many better indications of the search for simplicity than the steadily growing tendency toward thermo-syphon cooling. During the past year the number of makers who have eliminated pump cooling is 11; in other words, thermo-syphon cooling now is on 38 per cent of all cars, as against 27 per cent in 1915.

Pump circulation, on the other hand, still remains in the majority, 61 per cent of makers preferring the method. This is about 10 per cent less than in 1915.

Still another step toward simplification has been the landslide to single ignition. For example, in 1915 only about half the chassis models had single ignition, whereas for 1916 more than three-fourths are so equipped. This single system may be either by battery current or by magneto, but the dual system, which uses both, has been decreasing since 1913.

Lubrication Prediction Went Wrong

The prediction made a year ago that the increase in motor speeds would be reflected in an alteration in lubricating methods is not being borne out by facts. In 1915 the percentage of chassis models using pressure feed jumped to 37.5, as compared with 18 per cent for the previous year. And though this was declared to be a step toward a higher percentage, such has not been the case, for in 1916 the figure drops again to 23.35. The typical American method now is to carry the oil under slight pressure to the main bearings with overflow to splash troughs for the connecting rods, and this method increased in popularity during the year gone by from 16 per cent to 23.3 per cent.

The introduction of vacuum fuel feed last year, when it appeared on 20 per cent of the chassis models produced, has

shown a very marked increase in popularity, the percentage figure for 1916 being 53.8.

Aluminum Parts Gain Steadily

The use of lighter reciprocating parts, and, indeed, of the use of various alloys of aluminum and the lighter alloys in all parts of the motor received a tremendous boost during the past year, and reached its climax with the production of one stock car with aluminum cylinders.

The outstanding feature, however, is the increased use of aluminum for pistons. With motor speeds constantly mounting to well over the 3,000 mark, the need for lighter parts has been imperative, and now a considerable number of manufacturers have turned to these alloys and to high tensile strength steels.

The chain drive for the camshaft is another feature which has shown considerable gain during the year gone by. Whereas in 1915 but 9.1 per cent of chassis models used chains, the number for 1916 has just doubled. Curiously, in 1914 the percentage was 10, as against 7 in 1913. Prior to that no records are available. In actual numbers there are now 22 makers who use chain camshaft drive for 1916.

While the widespread use of aluminum is a new thing, it has required many years of experimentation and tentative service to find out just how to overcome the troubles which made earlier attempts to employ the light metal dismal failures.

Makers Who Concentrate on One Model

Allen	Inter-State
Arbenz	Kline
Bell	Luverne
Biddle	Madison
Brewster	Marion
Cadillac	Marmon
Cameron	Maxwell
Case	Mecca
Chandler	Metz
Cole	Monroe
Crow-Elkhart	Morse
Daniels	Owen
Detroitier	Packard
Dispatch	Paterson
Dodge	Peerless
Dort	Premier
Elkhart	Republic
Enger	Singer
Farmack	Spaulding
Ford	Sterling
Franklin	Stewart
F. R. P.	Sun
Glide	Trumbull
Grant	Vixen
Halladay	Willys-Knight
Harvard	Woods
	Hudson

CARBURATION

Vacuum Feed Increases—Side Outlets Gain

THE individual feature which has influenced carbureter development to the greatest extent during the year gone by has been the increasing speed of motors and the necessity for providing for much quicker acceleration than has been necessary in the past. In addition to the requirements of higher speed there has also been the multiplication of cylinders, and to a somewhat lesser extent the need for handling fuel which appears slightly less volatile.

Closely connected with carbureter development is the landslide to vacuum feed, and this constitutes one of the real features of the year. Analysis of the specifications of all the cars on the market reveals that no less than 53.8 per cent of them are equipped with vacuum feed. In view of the fact that this apparatus was used for the first time last year when it appeared on almost exactly one-fifth of all chassis models, the increase is nothing short of startling.

As might be expected, the method of feeding fuel by gravity has shown a corresponding decrease and has been steadily declining during the last five years. For example, in 1910 the percentage of chassis with gravity fuel feed was 82, and in 1911 this dropped off to 81, and thence down through 75 in 1912, 65 in 1913, 58 in 1914 and 57 in 1915.

Gravity-pressure More Popular

The gravity-pressure method, on the other hand, has shown a slight increase, the percentage figure this year being 2.4, as against .5 for 1915. Straight pressure feed, however, has shown a very considerable slump, the percentage going down steadily since 1912, though prior to that time it had increased in popularity from 18 per cent in 1910 to 41 per cent in 1914. In 1915 the figure had dropped off to 22 per cent, and statistics for 1916 reveal a still further dropping off to 12 per cent.

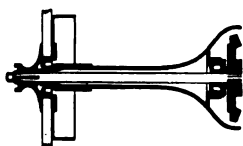
Carbureter development during the year has not brought out any new principles in the art, but has been confined principally to general refinement.

In general, there has been a slight trend toward the use of hot air attachments in preference to hot water jacketing, though the movement has not by any means been general. This may be explained in part by the quite general adoption of vacuum fuel feed which has permitted a much higher position of the carbureter and practically eliminated the intake manifold.

CHASSIS

Noteworthy Advance in Simplicity Apparent

IT IS only necessary to look upon the chassis of a new car, and to recall that of an old one, to realize what an advance has been made towards simplicity. The main cause has been the desire of every manufacturer to produce something which will go together with the minimum of labor. Hence, largely, three-point suspension for the power plant, because it does away with the necessity for lining up one part with another. Hence the unit power plant itself, and hence the brake assemblies



Almost as many three-quarter floating axles are used as semi-floating

which are now the rule, wherein the equalizers are all housed in a box or bar which bolts to a cross member of the frame.

Frame Alterations Are Few

In frame design there is but one really new thing, this being the Brush frame used on the Moline and the new Marmon. This frame is a scientific construction wherein every portion is made to do work. For example, the width of section of the side rails is so small that they would have no measurable resistance to whipping, and stiffness is obtained by using a steel running board, bent up at the ends and attached by rivets so that it provides the essential lateral stiffness. The one piece of steel serves as frame stiffener, running board and part fender, as the bent up portions form the rear end of the front and front end of the rear mudguard.

This frame is raised at the rear so high that it forms the ledge for the rear seat cushion, and so cuts out a portion of the body, and it can be made both stronger and lighter than the usual frame though it is not greatly more expensive.

With ordinary, conventional frames, there has been a tendency to increase the depth, to make them stronger in fact, the chief idea being to eliminate body stresses and squeaks. More makers are using frames with straight sides, and there is a small increase in taper frames; that is, frames in which the sides are straight, or almost straight, but the back is wide and the front narrow. This construction gives a good body support and is cheaper than the bent frame.

The cantilever spring now has been

accepted as a standard type, to be used where its shape is convenient to other chassis considerations. It has proved in practice at least as good as any other form, and a long spring can be employed without a long frame, which is sometimes an advantage. As many as 28 per cent of the cars on the American market now have this type of spring; the three-quarter elliptic remaining the most popular type, with 42 per cent. Semi-elliptic is found on only 15 per cent of chassis, while platform springs have dropped to under 6 per cent.

Undoubtedly the introduction of the cantilever has led to much spring discussion that has had the effect of improving other forms of spring, and the suspension of the 1916 chassis is distinctly better than that of any previous year. Lessening weights makes the spring man's task the harder. One thing which has helped is the realization that good steel has much to do with the matter, and buyers are a little less inclined to be swayed by price to the detriment of quality.

Wheelbase has varied quite a little in the past six years, rising to an average maximum of over 122 inches in 1915. This year it has lessened on the more expensive cars and lengthened on the low-price ones, the effect being to bring about a slight reduction on the average, the 1916 figure for all cars being 119.5 inches. The changes are due in the main to the increase of low-price seven-passenger cars and to the introduction of the many light sixes, costing between \$1,200 and \$2,000, while the eights also have had something to do with the matter.

Tires are smaller than for many years, the popularity of the 32 x 4 without doubt having had much influence on this. And again, the increase in the number of light cars has allowed a drop in tire dimensions. Smaller wheels mean an opportunity to cut the length overall a little and so have helped the wheelbase reduction perhaps to a small degree.

Hotchkiss Drive Gains

In transmission the trend toward simplicity is very marked. Hotchkiss drive, or that form of drive in which the rear axle is clipped rigidly to the springs and the latter take all driving stress is on the increase, torque rods are falling off, and radius rods have almost vanished. This is an effect of increasing spring knowledge, for it is easy now to make a spring that will do double duty.

The Hotchkiss drive can be employed only with an open driveshaft that has two universals, so the inclosed propeller shaft has few new adherents, but there are many who like it because it gives protection to the universals, always awkward things to grease, and so does away with a point that needs attention.

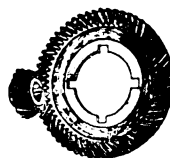
Having enjoyed a preponderance of

67 per cent in 1913, the floating axle now holds just over 50 per cent of the field, having lost ground before the onslaught of the semi-floating and three-quarter types. The rise to favor of the latter has been somewhat impressive, for with only 4 per cent of the chassis in 1913, it now holds 23 per cent and stands almost level with the semi-floating at 23.6 per cent. Full-floating has half the field and the other two types divide the remainder about equally.

In the actual form of final drive it is, of course, the spiral bevel which stands out prominent. In 1914 only one car had this form of drive, but soon after a less costly way of making this excellent gear was evolved and since then it has replaced the straight bevel almost as rapidly as the spiral bevel cutting machines could be turned out. In 1915 9.5 per cent of the cars listed had spiral drive. In 1916 56.8 per cent are so supplied. Chain drive and worm drive occupy an utterly inconsiderable portion of the field today, there being only a few cars shared between the two of them. Judging by the present state of affairs, it seems that the spiral bevel might occupy the whole field next year.

Wire Wheels Gain

While the number of concerns fitting wire wheels as stock equipment has shown little gain in the last year the number of wheels in use is gaining rapidly and manufacturers of wire wheels are busier now than they have been since the inception of the movement. The number of concerns offering wire wheels as optional equipment has almost tripled during the past year, an indication of the attitude of the public toward this wheel.



The spiral bevel has made a spectacular gain and now is used on more than half the chassis models

The novelty of the wheel has worn off and it has taken its place as a permanent factor in motor car construction.

Left Steering Universal

Not absolutely universal, but almost so, is left steering, since but 9 per cent of manufacturers still make right hand cars while 2 per cent have an option of left or right. Left control with left steering is also rated very rare indeed, center control being used upon 90 per cent of present-day chassis. There has been no change in the general layout of steering, and no entire novelties except a couple of new swivel heads on the Overland little four and the Marmon six. Folding steering wheels have gained no fresh supporters, and the King, which has used one all the year, has dropped it on the new model just added to the line.

Gear ratios have dropped considerably during 1915, the average being now below 4 to 1 for the first time in motor car history. This is slightly increased in effect by the smaller wheels in use, but only slightly, and the number of revolutions of the motor per mile of car travel is distinctly higher than ever. Of course this has been accompanied by a decrease in motor size, so the cubic inches of mixture displaced by the motor per mile of car travel has not increased as much as the gear ratio has decreased.

Turning to the figures for a moment, the gear ratio this year is 4.08 to 1, whereas it was 3.88 to 1 in January last and 3.6 to 1 the year before. In 1912 it was 3.62 to 1, so on the average the drop has not been as great as might have been imagined.

GEARSET AND CLUTCH

Selective Gearset and Disk Clutch Preferred

GEARSET STATISTICS taken from the 1916 cars indicate sharply the continued trend toward the selective system of operation and unit construction with the motor. In the new crop, 96.5 per cent have selective gearsets, and 63.5 per cent have their gearsets and motors combined in a unit. The selective system always has been in high favor; as far back as 1910, 85 per cent of the makers used it, and there has been an increase every year but one. In 1914 the percentage was 95, but in 1915 it dropped to 91.5, only to leap to 96.5 in the latest vintage.

The progressive type, on the other hand, has had a distinctly up-and-down career since 1910, when it comprised 8 per cent of the gearsets in use. In 1911 it dropped abruptly to 1 per cent, rose to 5 per cent the following year, and in the next two tobogganed to 2 and then to 1. In 1915, when the selective slumped to 91.5 per cent, the progressive made a temporary gain and reached 3.4; for 1916 it is down to 1.7—almost low-water mark.

Planetary and Friction Systems

Planetary gearing has been absolutely consistent in its retrogression. Makers to the proportion of 4 per cent used it in 1910 and the following year, 2 per cent in 1912, 1 per cent for the next three years, and now the "sun-and-planet" system is favored by but .6 per cent of the makers.

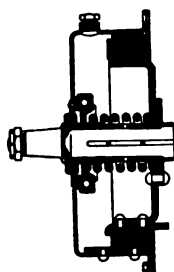
The statistical career of the friction type has been rather varied. Its best year

since 1910, when it was employed by 3 per cent of the car builders, was 1911, when it went up to 5 per cent, only to go down again to 1 per cent, rise to 3 and hold it for two years, and then fall to 2.5 and then to 1.2, where it now stands.

Unit Construction Favored

An interesting set of figures is encountered in looking up the career of the gearset as regards its position in the chassis. Of the three positions in use—amidships, in unit with the rear axle, and in unit with the motor—the motor unit plan is overwhelmingly in the majority, as has been stated, with 63.5 per cent, while 20.6 per cent of the makers like the midships location and 15.3 put the gearbox on the rear axle housing.

The interesting thing, however, is that in 1910 but a bare 10 per cent of the makers put the gearset with the motor, while 75 per cent used the middle position and 15 per cent—practically the same proportion as at the present day—used the rear axle position. The unit plan rose rapidly and steadily in favor,



The disk clutch is preferred by most makers, more than half of them using this type

the percentage of makers using it in 1911 being 16; in 1912, 25; in 1913, 34; in 1914, 43, and in 1915, 49.3. There was no retrogression—not even hesitation.

Clutch Statistics Explained

Just as steadily and consistently the midships position has lost ground, numerically speaking. With 75 per cent in 1910, the proportions for the succeeding years were as follows: 1911, 67 per cent; 1912, 55 per cent; 1913, 46 per cent; 1914, 39 per cent; 1915, 32.5 per cent, and 1916, 20.6 per cent. It was in 1914 that the unit system overtook the midships plan, the unit having 43 per cent and the midships 39 per cent.

Rather curiously, the rear axle position has run along with comparatively little variation. With 15 per cent in 1910 and 17 in 1911, it rose to its height in 1912 and 1913, when it was favored by 20 per cent of the manufacturers. Then it went down to 15, rose to 18.2, and now is at 15.3 per cent.

The ascendancy of the unit-built gearset is due to a number of reasons, not the least of which is the modern tendency to combine better mechanical construction and greater simplicity with designs that lend themselves to quantity

production. Weight reduction, unalterable alignment, rigidity, accessibility and convenience in assembling also are factors of importance.

The vital statistics of clutches reveal the fact that the disk type is in the majority. Of the makers of 1916 cars, 53.4 per cent use disks and 45.6 per cent cones; that leaves 1 per cent for the electric transmission system. Back in 1910 the disk also was in the majority, having 49 per cent, as against 39 per cent of cones; there were 6 per cent of expanding bands in that year, however, and 3 per cent of contracting bands, neither of which figure in the statistics of the coming twelvemonth. Incidentally, 1916 will be the first year in the period under consideration, when the two kinds of band clutches have not been represented, and at the same time it is the first year that has seen the electric type regularly on the market in this country.

Only in one year since 1910 has the cone clutch been the numerical superior of the disk, and that was in 1912, when 52 per cent of the makers had cones in their cars and only 44 per cent disks. In 1911 the proportion was 47 to 51; in 1913, 45 to 52; in 1914, 41 to 48, and in 1915, 44 to 51 per cent.

No More Band Clutches

Expanding bands in 1910 were the choice of 6 per cent of the makers; 2 per cent in 1911; 3 per cent in 1912; 1 per cent in 1913; took a jump to 3 per cent in 1914, only to drop even more suddenly to .5 per cent in 1915, preparatory to dropping into nothingness for the 1916 year.

Contracting bands were on 3 per cent of the cars of 1910 and 1 per cent in the two following years. The next year, 1913, saw what looked like the beginning of an increase of favor for the figure went to 2 per cent and the next year jumped to 5 per cent, only to go to 4.5 per cent, however, in 1915, and then disappear.

The reasons for all the changes in the vogue of various constructional details vary greatly and are not always easy to segregate. It is quite true that sometimes one maker will make a success of something that another will not, which has something to do with it; but what is of vastly greater moment in influencing manufacturers in their adoption of designs is proved worth. If a constructional detail, after years of use in the hands of the public makes good, in the vernacular, and at the same time is a good manufacturing proposition, its continuance is assured so long as nothing distinctly better is in sight.

What the public wants has a good deal to do with it, too. It is one of the most difficult things in the world to persuade the public to buy what it doesn't want, regardless of what the

manufacturer may say and no matter how convincingly it may be said. To a certain extent, then, public demand shapes the course of design. Occasionally some maker who has beliefs that differ from those of the majority of his kind sticks to his guns and in the end gets the public, or at least a sufficient proportion of it, to seeing things his way; but not many achieve this end.

Generally speaking, it is safe to say that the fittest survives. It is often argued by the minority that had the less favored types received as much attention as the more favored, the ultimate result would have been different; but while there may be a grain of comfort in this point of view, there probably is little else except that large word—If.

ELECTRIC EQUIPMENT

Simpler Apparatus the Rule—Single Ignition Gains

THE electric engine starter is now supreme. For the first time in five years it is the only type of starter which is listed as stock equipment on 1916 cars. Of the 108 different chassis models produced, 98.8 per cent now are equipped with starters as stock, there being only 1.2 per cent which are not so equipped.

The rise of the electric starter to popularity has been one of the spectacular features of the motor car industry. In 1912 electricity as a starting medium was to all intents and purposes unknown, as it was used on only 2 per cent of the chassis models produced. But that its possibilities were grasped at once alike by the motor car owner and the manufacturer is revealed by the fact that in the following year the percentage jumped at once to 37 and in 1914 there was a further increase to 87 per cent. In 1915 this percentage increased to 94.5, there then being 1.5 per cent of makers who supplied optional starting equipment, .5 per cent who supplied a mechanical starter and 3.5 per cent which used no starter at all.

The acetylene starter, which first sprang into prominence in 1913, has now completely disappeared, and the same can be said for the pneumatic type which even in 1915 was not listed as stock equipment by any manufacturers.

Simplicity Steadily Increases

During the past three years that electric starting has been developed to its present popularity, there have been two features of outstanding importance. The first of these is that electrical equipment

is rapidly growing much simpler in construction and the attention required to care for it has decreased proportionately; and the second is that the practical application of the apparatus to the car has been greatly simplified and at length has taken on an appearance of workmanship which was not always apparent in the earlier years of its use; in short, the modern electrical equipment is a simpler, much smaller unit than ever before. To express the trend in a still different way it might be said that development has been along both electrical and mechanical lines.

Two-unit Growth

One phase of the year's development which is worthy of close consideration is the trend toward the use of the two-unit system. In a sense, this can be explained by the fact that the amount of current required to light a car is practically the same regardless of the size of the car. On the other hand, the current required to start the motor varies almost in direct proportion to the dimensions of the cylinders and their number. Consequently it has become the practice on many of the larger cars to turn to the two-unit system as a solution of the problem.

Another significant trend has been toward the elimination of manual controls for varying the amount of current produced by the generator according to the



Higher engine speeds and more cylinders have necessitated faster-operating ignition apparatus

temperature of the atmosphere. In other words, it has been considered essential up to the present time to provide a means for slightly increasing current output during the winter months to offset a slight drop in the efficiency of the storage battery due to lower temperatures. Similarly, the current production has been slightly decreased in summer for the same reason. Experience has dictated, however, that such manual controls no longer are necessary and with their elimination has come greater simplification of starting-lighting systems in general.

Better Details

The rise to popularity of the Bendix gear for interconnecting the starting motor with the gasoline engine has been another feature of the year's development. Where the toothed flywheel is used, the Bendix gear is practically supreme, and there are many reasons why this should be so, probably the most important of which is the simplicity of the mechanism which requires only an

electrical contact and eliminates the vari-out rods and linkages which heretofore have been necessary.

In general, wiring and wiring methods have become much simpler during the year, and this is a feature which is of very vital importance to the dealer, the garageman and the repairman. For the most part, wiring is now enclosed in armored cables and terminals are far more plainly marked than has been the case in other years. Another praiseworthy feature is that wires are becoming shorter and fuses and connections are being placed in more accessible locations. Junction boxes on the dash or cowl are becoming much more common and this greatly simplifies the location of troubles in the wiring, especially for the owner.

Single Ignition Popular

Coincident with the simplification of lighting and starting apparatus there has also come a general elimination of complication in ignition systems. This is revealed by the great increase in popularity in the single ignition system. More than three-quarters of all the chassis models produced now have single ignition by either magneto or battery current, the exact percentage being 76. Ignition which employs both magneto and battery and which at one time was the most popular method, has decreased very considerably in popularity. The percentage of chassis models now using this method is down to 19.2 per cent. This figure is illuminating when compared with the figures for 1911, 1912 and 1913, which were respectively 53, 63 and 68 per cent. Single ignition, on the other hand, has increased through 1912, 1913, 1914 and 1915 to 15, 23, 56 and 70 per cent.

Automatic Advance Gains

The more important tendencies in the ignition field are towards the use of more rapid breaker mechanisms, faster coil action, simpler and more rugged breaker mounting, more perfect synchronism, shorter high-tension wiring, more compact switches and a better degree of waterproofness.

Automatic advance has shown a slight increase in popularity and it would seem that in years to come this will be in use to a still greater extent. This development has come from a realization that the speed variations demanded of the modern motor require closer coordination between spark advance and piston travel than can be given by the average driver, using the usual hand system of spark control.

Simplified System

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SPECIFICATIONS OF LEADING AMERICAN CARS BROUGHT UP TO DATE

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
ABBOTT-DETROIT												
6-44	6-3/4x4 1/2	25.3	Remy	Zenith	Remy	Plate	3 122	32x4	1,195 * 1,195	1,195		
8-44	8-3/4x5	33.8	Remy	Zenith	A-Lite	Disk	3 121	35x4 1/2	1,850		1,850	
ALLEN												
...	4-3/4x5	22.5	Walth	Stmbg	Walth	Cone	3 112	32x3 1/2	795	795		
APPERSON												
6-16	6-3/4x5 1/2	29.4	Remy	.....	Bijur	Plate	3 122	34x4	.....	1,485	1,550	
8-16	8-3/4x5	31.2	Remy	.....	Bijur	Plate	3 128	35x4 1/2	11,850	.....	1,850	
ARBENZ												
25	4-3/4x5	16.9	Conn	Carter	Apico	Cone	3 106	30x3 1/2	.....	675	.....
ARGO												
...	4-3/4x4	15.6	Conn	Mayer	Disco	Cone	3 103	30x3	.....	495	.....
...	4-3/4x4	15.6	Conn	Mayer	Disco	Cone	2 96	30x3	445	.....	.....
AURURN												
4-38	4-3/4x5	24.0	Remy	Rafid	Remy	Cone	3 114	34x4	985	985	.....
6-38	6-3 x5	21.6	Remy	Rafid	Remy	Cone	3 120	34x4	1,050	1,050	.....
6-40A	6-3/4x5	29.4	Delco	Rafid	Delco	Cone	3 127	34x4	1,375	.....	1,375	
BELL												
A-16	4-3/4x5	19.6	A. Kent	Carter	Disco	Cone	3 112	31x4	775	775	.....
BIDDLE												
D	4-3/4x5 1/2	22.5	Walth	.....	Walth	Plate	4 120	32x4	1,735	1,800	.....
BREWSTER												
...	4-4 x5 1/2	25.6	Bosch	Zenith	U S L	Cone	3 126	34x4 1/2	Chassis \$4,250			
BRISCOE												
1016	8-3 x3 1/2	28.8	Remy	Zenith	Apico	Cone	3 114	32x3 1/2	1950	950	.....
4-38	4-3 7-16x5 1/2	18.9	Remy	Mayer	Apico	Cone	3 114	32x3 1/2	1750	750	.....
BUICK												
D-54	6-3/4x5	33.7	Delco	Marvel	Delco	Cone	3 130	36x4 1/2	1,450	.....	1,485	
D-44	6-3/4x4 1/2	25.3	Delco	Marvel	Delco	Cone	3 115	32x4	950	985	.....
CADILLAC												
53	8-3/4x5 1/2	31.2	Delco	Own	Delco	Disk	3 122	36x4 1/2	2,080	2,080	2,080	
CAMERON												
...	6-3 x5	21.6	A. Kent	Zephyr	Apico	Cone	3 122	32x4	1,000	1,000	.....
CASE												
T	4-3/4x5	21.0	Walth	Own	Walth	Cone	3 120	34x4	11,000	.....	1,000	
CHALMERS												
6-48	6-3/4x5 1/2	29.4	A. Kent	Rafid	Entz	Disk	3 126	34x4 1/2	.....	1,550	.....
M-6	6-4 x5 1/2	38.4	Bosch	Rafid	Entz	Disk	4 132	36x4 1/2	.....	2,175	2,175	
6-40	6-3/4x5	23.4	A. Kent	Rafid	G & D	Plate	3 124	34x4	11,350	.....	1,350	
CHANDLER												
16	6-3/4x5	27.3	Bosch	Rafid	G & D	Plate	3 123	34x4	11,295	.....	1,275	
CHEVROLET												
H	4-3 11-16x4	21.7	.....	A-Lite	Zenith	Cone	3 106	32x3 1/2	750	750	.....
4-90	4-3 11-16x4	21.7	Simms	A-Lite	Zenith	Cone	3 102	30x3 1/2	.....	490	.....
COLE												
8-50	8-3/4x4 1/2	39.2	Delco	Stmbg	Delco	Cone	3 126	35x4 1/2	1,785	.....	1,785	
CROW												
C. E. Jr.	4-3/4x5	19.6	Conn	Zenith	Disco	Plate	3 112	32x3 1/2	.....	725	.....
DANIELS												
8	8-3/4x5	33.8	Walth	Zenith	Walth	Disk	3 127	34x4 1/2	12,350	2,350	2,370	
DAVIS												
F-E	6-3/4x5 1/2	29.4	Delco	Stmbg	Delco	Cone	3 124	34x4 1/2	.....	1,485	.....
F & G	6-3/4x4 1/2	25.3	Delco	Stmbg	Delco	Cone	3 120	34x4	.....	1,250	.....
DETROITER												
F	4-3/4x4 1/2	22.5	Dixie	Shblr	Dyneto	Disk	3 112	33x4	.....	965	.....
DISPATCH												
G	4-3/4x5	22.5	Bosch	Rafid	U S L	Gearless	120	36x3 1/2	1,135	1,210	.....
DODGE												
...	4-3/4x4 1/2	24.0	Elsmn	Stwrt	N E	Cone	3 110	32x3 1/2	785	785	.....
DOBRIS												
I-A-4	6-4x5	45.9	Walth	Stmbg	Walth	Disk	3 121	36x4 1/2	2,200	.....	2,250	
I-A-6	6-4 x5	38.4	Bosch	Stmbg	Walth	Disk	3 128	36x4 1/2	2,475	.....	2,475	
DORT												
5-A	4-3/4x5	16.9	Conn	Carter	Walth	Cone	3 105	30x3 1/2	.....	650	.....

ABBREVIATIONS—"G & D" Gray & Davis, "Spildd" Spilddorf, "A-Lite" Auto-Lite, "Walth" Westinghouse, "Shblr" Schebler, "Elsmn" Elsmann, "Rafid" Rayfield, "A. Kent" Atwater Kent, "Emm" Emerson, "Sevan" Sevan, "Undec" Undecided, "Bring" Berling, "Kngstn" Kingston, "Natl" National, "W. Lard" Ward Leonard, "U S L" United States Lighting, "Conn" Connecticut, "Stwrt" Stewart, "Nwcm" Newcomb, "N E" North East.

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
ELKHART												
...	4-3/4x5	19.6	Delco	Carter	Apico	Cone	3 114	32x3 1/2	775	775	.....
EMPIRE												
45	4-3/4x5	24.0	Conn	Shblr	A-Lite	Cone	3 116	32x4	1,335	935	.....
60	6-3 x5	21.6	Conn	Shblr	A-Lite	Cone	3 120	34x4	.....	1,095	.....
ENDER												
12	12-2 1/2x3 1/2	33.9	Remy	Zenith	Walth	Disk	3 115	32x4	.....	1,095	.....
FARMACK												
...	4-3/4x5	19.6	Dixie	Stmbg	Bijur	Cone	3 112	32x4	855	855	.....
FIAT												
55	4-5/4x6 1/2	42.0	Bosch	Own	Own	Disk	4 128	37x5	14,850	4,850	4,850	
56	6-4 1/2x6	46.6	Bosch	Own	Own	Disk	4 135	37x5	15,350	5,350	5,350	
FORD												
T	4-3/4x4	22.5	Ford	Holley Kingston	.....	Disk	2 100	30x3 1/2	300	440	.....
FRANKLIN												
8	6-3/4x4	31.5	Elsmn	Own	Dyneto	Disk	3 120	34x4 1/2	11,900	1,950	.....
F. R. P												
45	4-4 1/2x6 1/2	33.8	Bosch	Zenith	Bosch	Cone	4 110 140	36x4	Chassis only	5,000		
GLIDE												
6	6-3 x5	21.6	Walth	Rafid	Walth	Disk	3 119	34x4	.....	1,095	.....
GRANT												
V	6-3 x4 1/2	21.6	A. Kent	Rafid	A-C	Cone	3 112	32x3 1/2	795	795	.....
HALLADAY												
B	6-3 x5	21.6	Walth	Stmbg	Walth	Plate	3 122	34x4	11,385	1,385	.....
HARVARD												
4-20	4-3 x4 1/2	14.4	Bosch	Zenith	Dyneto	Disk	3 100	28x3	750	.....	.....
HAYNES												
34	6-3/4x5	29.4	Kngstn	Rafid	L-N	Plate	3 121	34x4	11,485	1,385	.....
35	6-3/4x5	29.4	Kngstn	Rafid	L-N	Plate	3 127	35x4 1/2	.....	1,495	.....
HERFF-BROOKS												
4-35	4-4 x4 1/2	25.6	Dixie	Stmbg	Apico	Cone	3 110	33x4	885	885	.....
116-50	6-4 x4 1/2	38.4	Dixie	Stmbg	Apico	Cone	3 130	34x4	1,095	1,095	.....
HOLLIER												
...	8-3 x4 1/2	28.8	A. Kent	Stmbg	Apple	Cone	3 112	32x3 1/2	.....	965	.....
HUDSON												
Super 6	6-3/4x5	29.4	Delco	Own	Delco	Disk	3 125 1/2	35x4 1/2	11,375	.....	1,375	
HUPMOBILE												
...	4-3/4x5 1/2	22.5	A. Kent	Zenith	Bijur	Disk	3 119 134	34x4 35x4 1/2	1,085	1,085	1,225	
INTER-STATE												
T	4-3/4x5	19.6	Remy	Shblr	Remy	Cone	3 110	33x4	850	850	.....
JACKSON												
34	4-3/4x5	19.6	Conn	.....	A-Lite	Cone	3 112	32x4	.....	985	.....
348	8-2 1/2x4 1/2	26.4	Conn	.....	A-Lite	Cone	3 112	32x4	.....	1,195	.....
68	8-3/4x4 1/2	39.2	Conn	.....	A-Lite	Cone	3 124	34x4 1/2	.....	1,085	.....
JEFFERY												
Four Chfd	4-3/4x5 1/2	22.5	Bosch	Stmbg	Bijur	Plate	3 116	34x4	11,000	1,000	1,033	
...	6-3 x5	21.6	Bosch	Stmbg	Bijur	Plate	4 122	34x4	.....	1,350	.....
KING												
D	8-2 1/2x5	26.4	A. Kent	Zenith	W. Lard	Disk	3 113	33x4	11,150	1,150	.....
E	8-3 x5	28.8	A. Kent	.....	W. Lard	Plate	3 120	34x4	.....	.....	.....
KISSEL												
4-32	4-3/4x5 1/2	24.0	Walth	Stmbg	Walth	Cone	3 115	33x4	11,150	1,050	.....
6-42	6-3/4x5 1/2	31.5	Elsmn	Stmbg	Walth	Cone	3 126	34x4	11,050	1,485	1,585	
KLINE												
6-36	6-3/4x4 1/2	25.3	Walth	Own	Walth	Plate	3 130	34x4	1,085	1,085	.....
LENOX												
O	6-3/4x5 1/2	29.4	Walth	Zenith	Walth	Disk	3 128	34x4 1/2	.....	1,985	.....
D	4-4 1/2x5 1/2	28.9	Walth	Own	Walth	Cone	3 118	34x4 1/2	1,900	.....	.....
LEXINGTON												
4-Ka	4-3/4x5 1/2	24.0	Walth	Shblr	Walth	Disk	3 115	34x4	.....	1,375	.....
6-La	6-3/4x5	29.4	Walth	Shblr	Walth	Disk	3 128	34x4	11,875	1,875	.....

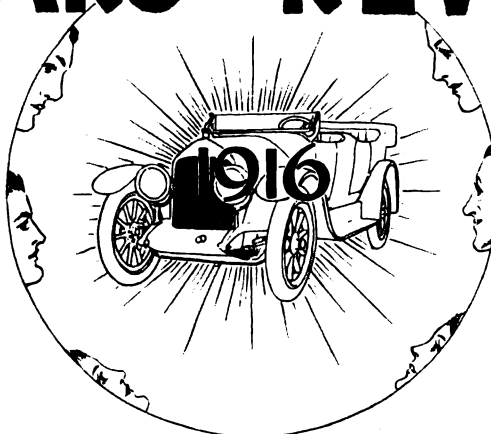
"A-C" Allis-Chalmers, "L-N" Leece-Neville, "O M" Owen Magnetic, "B-Rhm" Bosch-Rushmore, "Fm Trs" Friction Transmission, "Mgnto" Magnto, "Tltm" Tillotson.

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
LOCOMOBILE												
M-6	6-4½x5½	48.6	Bosch	Own	Watha	Diak	4	143	37x5	....	*5,100	5,100
R-6	6-4½x5	43.3	Bosch	Own	Watha	Diak	4	140	37x5	....	*4,400	4,400
LOZIER												
84	4-4½x6½	28.9	Bosch	Stwrt	G & D	Diak	4	120	36x4½	2,100	....	2,100
82	6-3½x6	38.0	Elamn	Rafld	G & D	Diak	3	132	36x4½	....	....	3,250
LUVIERNE												
700	6-4	25	38.4	Bosch	Shblr	Apico	Diak	3	130	36x4½	....	2,500
MADISON												
T	6-3	25	21.6	Remy	Rafld	Remy	Diak	3	120	34x4	....	....
MARION												
K	6-3	25	21.6	Watha	Zenith	Watha	Diak	3	120	32x4	1,060	1,060
MARMON												
34	6-3½x5½	33.7	Bosch	Stmbg	Bosch	Cone	3	136	34x4½	....	....	....
MAXWELL												
...	4-3½x4½	21.0	Simms	K-D	Simms	Cone	3	102	30x3½	635	635	....
McFARLAN												
T	6-4	x8	38.4	Watha	Stmbg	Watha	Cone	3	132	36x4½	2,880	2,680
X	6-4½x6	48.6	Watha	Stmbg	Watha	Cone	3	132	36x4½	....	73,140	2,930
McINTYRE												
25	4-3½x5½	19.6	Bosch	Stmbg	G & D	Cone	3	106	32x3½	....	850	....
6-40	6-3½x4½	29.4	Briggs	Stmbg	Briggs	Diak	3	120	35x4	....	1,375	....
MECCA												
30	4-3½x4½	22.5	Dixie	Shblr	Disco	Diak	3	104	30x3½	695	695	....
MERCER												
Spdstr	4-3½x6½	22.5	Bosch	Zenith	.....	Diak	4	115	32x4	2,750	....	....
22-72	4-3½x6½	22.5	Bosch	Zenith	U S L	Diak	4	130	34x4½	....	*3,000	....
METZ												
25	4-3½x4	24.0	.....	A W T	G & D	Frn Trs	106	32x3½	600	600	....	....
MITCHELL												
8	8-3	x5½	28.8	Conn	Zenith	Watha	Cone	3	125	34x4	11,250	1,250
6 of 16	6-3½x5	29.4	Conn	Rafld	Apico	Cone	3	125	34x4	11,250	1,250	1,285
MOLINE-KNIGHT												
50	4-4	x6	25.6	Bosch	Shblr	Wagner	Cone	4	128	36x4½	2,500	2,500
40	4-3½x5	22.5	Conn	Shblr	Wagner	Cone	3	118	34x4	1,375	1,375	....
MONITOR												
C & R	4-3½x4½	22.5	Spldf	Shblr	Disco	Diak	3	108	32x3½	795	795	....
N	6-3½x5	23.4	Spldf	Shblr	Disco	Diak	3	115	33x4	....	895	....
MONROE												
M-2	4-3	1-16x3½	15.0	Conn	Zenith	A-Lite	Cone	8	96	30x3	495	....
MOON												
6-40	6-3½x5½	29.4	Delco	Rafld	Delco	Plate	3	124	34x4	1,475	....	1,475
6-30	6-3½x4½	25.3	Delco	Stmbg	Delco	Plate	3	118	33x4	1,195	1,195	....
MORSE												
D	4-4½x5	34.2	Elamn	Stmbg	G & D	Diak	4	127	36x4½	3,600	3,600	3,700
NATIONAL												
Highway	12-2½x4½	36.3	Dixie	Rafld	Watha	Cone	3	128	36x4½	11,690	11,960	*2,020
Highway	6-3½x5½	29.4	Dixie	Rafld	Watha	Cone	3	128	34x4½	11,690	11,960	*1,720
Newport	6-3½x5½	33.75	Elamn	Rafld	Watha	Cone	3	134	36x4½	*2,375	12,375	2,400
OAKLAND												
38	4-3½x5	19.6	Delco	Marvel	Delco	Cone	3	112	33x4	1,050	1,050	....
50	8-3½x4½	39.2	Delco	Stmbg	Delco	Cone	3	127	34x4½	....	....	1,585
32	6-2	13-16x4½	18.9	Remy	Marvel	Cone	3	110	32x3½	795	795	....
OLDSMOBILE												
43	4-3½x5	19.6	Delco	Marvel	Delco	Cone	3	120	33x4	....	1,065	....
44	8-2¾x4	26.4	Delco	Johnsn	Delco	Cone	3	120	33x4	1,295	1,295	....
OVERLAND												
83	4-4½x4½	27.2	Dixie	Tltn	A-Lite	Cone	3	106	33x4	725	750	....
86	6-3½x5½	29.4	Dixie	.....	A-Lite	Cone	3	125	35x4½	....	....	1,145
75	4-3½x5	15.6	.....	.....	A-Lite	Cone	3	104	31x4	565	615	....
OWEN												
I	6-3½x5½	33.7	Bosch	Master	O M	O M	.	138	35x5	*3,750	....	3,750
PACKARD												
1-25	12-3	x5	43.2	Delco	Own	Bljur	Diak	3	125	37x5	2,750	2,750
1-35	12-3	x5	43.2	Delco	Own	Bljur	Diak	3	135	37x5	....	3,150
PAIGE												
6-46	6-3½x5½	29.4	Remy	Rafld	G & D	Diak	3	123	34x4	....	....	1,295
6-36	6-3	x5	21.6	Remy	Stmbg	G & D	Diak	3	112	32x4	....	1,065
PARTIN-PALMER												
32	4-3½x5	19.6	Conn	Shblr	Federal	Diak	3	110	32x3½	....	675	....
8-45	8-3½x4	31.2	Conn	Rafld	Remy	Diak	3	115	33x4	....	....	*1,195
20	4-3½x4½	15.6	Conn	Shblr	A-C	Diak	3	96	29x3½	495	....	....
PATERSON												
6-42	6-3½x4½	25.2	Delco	Stmbg	Delco	Cone	3	117	32x4	....	985	1,060
PATHFINDER												
LaSalle	12-2½x5	39.6	Delco	Stmbg	Delco	Plate	3	130	35x5	12,475	....	2,475
8-A	6-3½x5½	29.4	Watha	Stmbg	Watha	Diak	3	122	35x4½	....	1,665	1,665
PEERLESS												
...	8-3½x5	33.8	A. Kent	Special	G & D	Diak	3	125	35x4½	11,890	....	1,890

Model	Motor	S. A. E. Rating	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	2-Passenger	5-Passenger	7-Passenger
PIERCE-ARROW												
38-4	6-4 x5½	38.4	Bosch	Own	Walth	Cone	4	134	36x4½	4,300	4,300	4,300
48-4	6-4½x5½	48.6	Bosch	Own	Walth	Cone	4	142	37x5	4,800	4,800	5,000
68-4	6-5 x7	60.0	Bosch	Own	Walth	Cone	4	147½	38x5½	5,900	5,900	6,000
PILOT												
6-55	6-3½x5½	36.0	Walth	Stmbg	Walth	Cone	3	126	34x4	....	....	....
6-75	6-4½x6	48.6	Walth	Stmbg	Walth	Cone	3	132	37x4½	....	....	....
6-45	6-3 x5	21.6	Delco	Rafid	Delco	Plate	3	119	32x4	....	....	....
PREMIER												
6-56	6-4 x5½	38.4	Delco Remy	Rafid	Delco	Disk	3	134	36x4½	2,300	....	2,300
PULLMAN												
Jr	4-3½x4½	22.5	Dixie	Stmbg	Apico	Disk	3	114	31x4	....	....	....
6-48	6-3½x5½	33.7	Simms	Stmbg	Walth	Disk	4	134	36x4½	....	....	....
REGAL												
D	4-3½x5	22.5	Conn	Stwrt	Dyneto	Cone	3	115	33x4	985	985	....
F	8-3 x4½	28.8	Conn	Stwrt	Dyneto	Cone	3	115	33x4	1,200	1,200	..
E	4-3½x4	19.6	Conn	Stwrt	Dyneto	Cone	3	106	30x3½	650	650	....
REPUBLIC												
E	6-4½x5	43.3	Delco	Rafid	Delco	Cone	4	133	36x4½	....	12,950	2,950
REO												
M	6-3 9-16x5½	30.4	Remy	Johnson	Remy	Disk	7	126	34x4½	....	....	1,250
R	4-4½x4½	27.2	Remy	Johnson	Remy	Disk	3	115	34x4	....	875	....
RICHMOND												
4-35	4-4 x4½	25.6	Dixie	Stmbg	Apico	Cone	3	110	33x4	1885	885	....
116-50	6-4 x4½	38.4	Dixie	Stmbg	Apico	Cone	3	120	34x4	1,065	1,065	....
ROSS												
A	8-3 x4½	28.8	A. Kent	Zenith	Detroit	Disk	3	115	34x4	....	1,350	....
C	8-3½x5	33.8	.....	Zenith	.....	Plate	3	130	34x4	....	....	....
SAXON												
14	4-2½x4	12.1	A. Kent	Mayer	.....	Disk	3	96	28x3	385	....	....
82	6-2½x4½	19.8	A. Kent	Rafid	Detroit	Disk	3	112	32x3½	....	785	....
SCRIPPS-BOOTH												
C	4-3 x4½	14.4	A. Kent	Zenith	Bijur	Disk	3	110	30x3½	775	....	....
D	8-2½x3½	22.0	.....	Zenith	Bijur	Plate	3	110	32x3½	....	....	....
SPAULDING												
H	4-4½x5½	28.9	Simms	Rafid	Entz	Cone	3	120	36x4	1,250	1,250	....
SIMPLEX												
...	4-5½x6½	46.2	Bosch	Nwcm	Rahmr	Disk	4	137	37x5e	Shaft or chain	....	....
Crane	6-4½x6½	45.9	Bosch Elsmn	Nwcm	Rahmr	Disk	4	143½	37x5e	....	....	....
SINGER												
81x	6-4 x5½	38.4	Bosch	C R G	Walth	Disk	4	138	36x5	13,000	....	3,000
STANDARD												
8	8-3 x5	28.8	Walth	Zenith	Walth	Disk	3	121	35x4	11,735	....	1,735
6	6-4 x5½	38.4	Spidr	Rafid	Walth	Disk	3	126	36x4½	12,100	2,100	....
STEARNS-KNIGHT												
L-4	4-3½x5½	22.5	Remy	Shblr	Walth	Cone	3	119	34x4	....	1,395	....
8-K-6	6-4½x5½	43.3	Bosch	Stmbg	G & D	Disk	4	134 140	37x5	....	....	....
8-K-8	8-3½x5	33.8	Remy	Rafid	Walth	Disk	3	123	35x4½	....	....	2,050
STERLING												
...	4-2½x4	13.2	A. Kent Conn	Holley Zenith	.....	Cone	3	102	30x3½	595	....	....
STEWART												
T	6-3½x5	29.4	Walth	Rafid	Walth	Disk	3	127	34x4½	11,950	....	1,950
STUDEBAKER												
4	4-3½x5	24.0	Remy	Shblr	Wagner	Cone	3	112	34x4	1850	....	885
6	6-3½x5	36.0	Remy	Shblr	Wagner	Cone	3	123	34x4	11,000	....	1,050
STUTZ												
New C	4-4½x5½	36.1	Bosch	Stmbg	Remy	Cone	3	120	34x4½	2,000	12,250	....
C	4-4½x5½	36.1	Bosch	Stmbg	Remy	Cone	3	130	34x4½	12,550	*2,300	....
SUN												
...	6-3 x5	21.6	Remy	.....	Remy	Plate	3	116	.....	....	....	....
TRUMBULL												
16B	4-3½x4	13.2	Dixie	Zephyr	R & M K & D	Disk	3	80	28x3	395	....	....
VELIE												
22-40	6-3½x4½	25.3	Remy	Stmbg	Remy	Plate	3	115	32x4	1,040	1,045	....
15-45	6-3½x5½	29.4	A. Kent	Stmbg	G & D	Disk	4	124	34x4	*1,450	1,400	....
VIXEN												
S.B.	4-2½x4	12.1	A. Kent	Zephyr	.....	Frm Trs	106	28x3	1395	....	....	....
WESTCOTT												
51	6-3½x5½	29.4	Delco	Rafid	Delco	Disk	3	125	35x4½	11,595	....	1,595
41	6-3½x4½	33.7	Delco	Rafid	Delco	Disk	3	120	34x4	11,395	1,395	....
WHITE												
TAH	4-3½x5½	22.5	Bosch	Own	Own	Plate	4	115	32x4	12,650	2,700	....
TED	4-4½x6½	28.9	Bosch	Own	Own	Plate	4	133½	36x4½	13,750	....	3,800
WILLIS-KNIGHT												
84	4-4½x4½	27.2	Dixie	Titan	A-Lite	Cone	3	114	34x4	1,065	1,065	....
WINTON												
23	6-4½x5½	48.6	Bosch	Rafid	Bijur	Disk	4	138	37x5	3,500	3,700	3,500
22A	6-3½x5½	33.7	Bosch	Rafid	Bijur	Disk	4	128	36x4½	2,285	2,285	2,285
WOODS												
3	4-2½x4	11.0	Bosch	Carter	.....	Cone	2	104	28x3	380	....	....

THE CARS REVIEWED

Striking Points in Design and Construction That Characterize the New Models



Alterations That Promote Simplicity and Accessibility in the Leading Makes of Cars

ABBOTT-DETROIT

A six and an eight form the Abbott-Detroit line, the former made with touring, roadster, speedster and sedan bodies, and the eight with either touring or speedster equipment. These are not one chassis with two different motors, but are two totally separate designs; even the starting and lighting outfits are different, being Remy on the six and Auto-Lite on the eight. In wheelbase there is but an inch of difference, but the piston displacement of the eight is greater. On the eight large tires and big brakes are features, and the electric storage battery has a capacity a little above the average.—Consolidated Car Co., Detroit.

ALLEN

Only one Allen chassis is now being made as compared with five last year. The motor has $\frac{1}{4}$ in. more bore, being now $3\frac{3}{4} \times 5$ in., and is made in the Allen plant. Cooling is by thermo-syphon and lubrication is a combination of splash and pressure. The axle is a floating pattern made specially to Allen design; it has straight bevels and a pressed steel housing. The long, semi-elliptic rear springs are underslung and very flat, the end of the frame bending down in a sweeping curve. The propeller shaft is enclosed in a torsion tube, but the drive is through the springs. The brake operating rods are conspicuously straight and have few links or connections. Features of the body are the wide doors with concealed hinges and high sides with flush upholstery; both a five-passenger and a roadster are supplied on the same chassis.—Allen Motor Co., Fostoria, O.

APPERSON

The six and eight are practically identical except in the motors. The former measures $3\frac{1}{2} \times 5\frac{1}{2}$ and the latter $3\frac{3}{4} \times 5$. Both have vacuum feed and Bijur starting and lighting, plate clutches and three-speed gearsets amidships. The wheelbase is 128 in. In the eight care has been taken to make the crankshaft and its supports so stiff that periodic vibration is impossible. The six is similarly well thought out. Touring bodies and a very neat four-passenger roadster are made, the latter being a development of the clover leaf three seater. All four passengers are in close proximity and can converse together, while each has plenty of room for comfort.—Apperson Bros. Automobile Co., Kokomo, Ind.

ARBENZ

A new model Arbenz with four-cylinder, $3\frac{3}{4} \times 5$ motor and five-passenger body, is

made. It has an Apelco two-unit starting and lighting equipment and Connecticut ignition. A floating type rear axle used has double integral brakes of large size and the equipment is inclusive of $30 \times 3\frac{1}{2}$ -in. tires. The specifications are those of a thoroughly well proportioned light car.—Arbenz Car Co., Chillicothe, O.

ARGO

Both roadster and five-passenger body types are built upon the one wheelbase of 96 in., the engine and clutch form the front unit, the gearset and universal another, and the rear axle with its enclosed driveshaft a third. The engine is a four, with dimensions of $2\frac{1}{2} \times 4\frac{1}{2}$ in., developing 17.5 brake horsepower and having a rating of 12.1. Cylinders are block-cast and bolt to the aluminum barrel crankcase which carries the two-bearing crankshaft. Again, simplicity is fostered by making the clutch a reversed cone. This also greatly simplifies the clutch throwout mechanism. Just back of the gearbox there is still further evidence of simplification, for the universal joint also is a transmission brake. The outer part of the joint takes the form of a drum, and a band contracts around it when the lever is applied. Instead of the regular form of gear differential, the Bailey gearless type is employed in the rear axle. To simplify the control the service brakes are applied by the same pedal that releases the clutch. In either touring car or roadster the front seat is adjustable for height and leg room.—Argo Motor Co., Jackson, Mich.

AUBURN

The three 1916 cars rank in the medium-price class; all three are new. The four is made in five-passenger and roadster form and has large tires with a cantilever rear suspension. The two sixes are somewhat similar, both being of 5-in. stroke, the smaller of 3-in. bore and the larger $3\frac{1}{2}$ in. There is a difference in the electrical equipment, as Delco is used on the big six with Remy on the small six and the four. Cantilever springs are now used on all models. Floating rear axles are fitted and on each the drive is through the springs with a torsion tube in addition. Both the sixes have L-head motors and integral intake manifolds, but the four is still a T-head, though the manifold is integral on this motor also, rather an unusual feature for a T-head construction, by the way. There has been a price reduction on the four, and the big six is also cheaper than the 1915 six. The light six comes between the two and is not directly comparable with either 1915 model.—Auburn Automobile Co., Auburn, Ind.

BELL

This is a four-cylinder $3\frac{3}{4} \times 5$ motor with cone clutch and three-speed gearset in unit. It is equipped with either a roadster or five-passenger touring body. Spiral bevel drive in a Hess floating axle is used. Tires are 31×4 and the wheelbase is 112. Starting equipment is a single-unit Disco operating at 12 volts.—Bell Motor Car Co., York, Pa.

BIDDLE

The Biddle is a newcomer with a $3\frac{3}{4} \times 5\frac{1}{2}$ four-cylinder motor, plate clutch and gearset in unit. The motor follows usual lines and is fitted with Westinghouse electrical equipment. The chassis is obtainable for special body equipment, or there is a choice of three standard bodies of five-, four- or two-passenger capacity. Another unusual detail is the provision of four speeds in the gearset, which is in unit with the engine, this giving a high gear ratio of 3.2 to 1. The direct gear is the third speed, which is 4 to 1. Both straight and spiral bevel drives are supplied.—Biddle Motor Car Co., Philadelphia, Pa.

BREWSTER

The Brewster is a Knight-engined four of high-grade design and workmanship which is to be sold for custom-built body equipment. The motor is $4 \times 5\frac{1}{2}$ in. and has the U. S. L. flywheel starter. Forced lubrication is used and a special model Zenith carburetor fitted. The gearset is located amidships and gives three speeds, while the rear axle is a special design with spiral bevel drive, the propeller shaft being enclosed in a torsion tube which also takes the driving effort.—Brewster & Co., Long Island City.

BRISCOE

Either a four- or an eight-cylinder motor is interchangeable in the one chassis. The idea is to furnish the customer either an eight or a four, as desired, and, if he chooses a four and within 30 days decides he would prefer an eight, the Briscoe company will replace his four with the eight for \$200 additional. In order to make this possible with the least amount of trouble, the gearset has been separated from the engine and placed amidships so that only the power unit itself has to be taken out, either motor coupling to the drive shaft ahead of the gears. A new design of four-cylinder motor is used in the 1916 car, $3\frac{7}{16} \times 5\frac{1}{2}$ in., which gives a horsepower of 38 at 1,700 r. p. m., it is claimed. The eight that is supplied is the Ferro, which has overhead valves and the upper part of the crankcase

in unit with the two blocks of cylinders. Its dimensions are 3 x 3½ in., which gives a displacement of 198 cu. in., as compared with 190.4 cu. in. in the four. In outward appearance the 1916 Briscoe is readily distinguishable from the previous model, principally due to the larger body and wheelbase increase to 114 in. from 107 in.; the fitting of two headlights instead of the former single headlight in the top of the radiator; the use of domed fenders and the suspension of the rear by cantilevers instead of semi-elliptic springs as used in 1915. Tires have been enlarged to 32 x 3½ from 30 x 3½, and the old design of double internal expanding brakes has given way to the more conventional internal and external form, these being considerably larger and more powerful—Briscoe Motor Co., Jackson, Mich.

BUICK

Similarity of design is found in the two chassis, except in the motors. The little six uses a 3¼ x 4½ in. engine with the cylinders cast in a block, while the larger six has a 3¼ x 5-in. motor with the cylinders in pairs. Both are in unit with the gearset. The valves are each carried in individual cages. There is a new type of aluminum cone clutch with a clutch brake that facilitates gearshifting; three small engagement springs equalize the action. The old form of clutch coupling has also been abandoned for a shaft that is a single piece of steel integral with the constant mesh pinion of the gearset. The gearset has an interlocking device which prevents any possibility of simultaneous engagement of two gears. The gearset bolts to the rear of the engine, forming the familiar unit power plant construction. Both cars have cantilevers in the rear. The drive shaft is enclosed in a torsion tube, the front end of which is yoked to the back of the gearbox in such a manner as to give universal action. The wheelbases are 115 and 130 in. for the small and large sixes, respectively, and while only roadster and seven-passenger touring bodies may be secured on the larger chassis, the smaller model includes sedan and coupelet types as well.—Buick Motor Co., Flint, Mich.

CADILLAC

The most striking thing about the Cadillac eight of 1916, which is designated as type 53, is the absence of material change as compared with the 1915 model. A slight alteration in the body lines and a cleaning up of the V between the cylinder blocks so as to make the tappets more accessible are the two outstanding differences in a design which only the year before struck out on a new course as compared with previous practice in power plant design in this country. Chief among the motor changes are those which have to do with rendering the valves more accessible. This is done, first, by moving the motor-generator back somewhat, and then by removing the power tire pump from the front end of the generator drive shaft and putting it on the left side of the gearbox. The ignition distributor, which was formerly in unit with the motor generator, is placed where the pump used to be, this shortening the motor-generator and leaving more space on both sides of the carburetor. The exhaust manifolds have been upswept instead of running straight back in line with the exhaust openings, bending away from the space between the cylinders instead of protruding into it. A refinement of the ignition wiring adds to the dependability of the ignition. An aluminum cover goes over the distributor, and a wiring manifold runs from either side of it to carry the wires to the spark plugs. The distributor cover and wire tubes are held in

UNIT POWER PLANTS ARE USED BY 74 MAKERS

Abbott-Detroit	Lenox
Allen	Lexington
Arbenz	Lozier
Auburn	Luverne
Bell	Madison
Biddle	Marion
Buick	Maxwell
Cadillac	Mecca
Case	Monitor
Chalmers	Monroe
Chandler	Moon
Chevrolet	National
Cole	Oakland
Daniels	Oldsmobile
Davis	Packard
Detroit	Paige
Dodge	Partin-Palmer
Dorris	Paterson
Dort	Pathfinder
Elkhart	Peerless
Empire	Pilot
Enger	Premier
Farmack	Pullman
Fiat	Regal
Ford	Ross
Glide	Scripps-Booth
Grant	Simplex
Halladay	Singer
Haynes	Standard
Herff-Brooks	Stearns-Knight
Hudson	Sterling
Hupmobile	Stewart
Jackson	Sun
Jeffery	Velie
King	Wayne
Kissel	Westcott
Kline	Winton

place by spring clips. Other mechanical changes include reducing the second speed gear ratio to give greater pulling power on intermediate; moving the brake and clutch pedals 2 in. forward to give more leg room; increasing the radiator height, and fitting mud splashers to the lower part of the radiator and along the inside of the frame front ends. The 1916 hood is higher and wider, and the sides of the body are also higher, giving the appearance of a larger car, although the wheelbase remains 122 in.—Cadillac Motor Car Co., Detroit.

CAMERON

The Cameron, having been one of the few air-cooled cars of America last year, changed over and adopted water cooling, turning out a light car of a generally conventional design. For 1916 this new model is being continued in five-passenger and two- or four-passenger roadster form with a 3 x 5-in. six-cylinder motor of the high-speed type.—Cameron Mfg. Co., New Haven, Conn.

CASE

The Case four has 3¼ x 6 motor. A silent chain drive is used for the front end, but otherwise the design is conventional, including splash-pressure lubrication with a piston pump to force oil to the main crankshaft bearings. Large valves and a special carburetor are employed. It is a fairly high-speed engine for so long a stroke, developing maximum power at 2,100 r. p. m. The three-speed gearset is in unit with the motor and the clutch a reversed cone. The rear axle is equipped with spiral bevel drive and the wheelbase is 120 in., the tires being 34 x 4 in. Two body styles are offered, a seven-passenger touring car and a roadster, the price being the same for either.—J. I. Case T. M. Co., Racine, Wis.

CHALMERS

A light six selling for \$1,050 is the new model; the other two, the Master six and the Six-40, are continued. The new car has a high-speed, L-head motor with detachable head. Pains have been taken with the valves, the gas passages, the reciprocating weights and the lubrication on account of the high speed. The pistons are aluminum alloy, with special detail designed to prevent smoking, and the connecting rods are light forgings. The fan is made from one piece of sheet steel and has two blades. A separate unit assembly has been made of the oil pump and ignition distributor. The oil pump is external to the crankcase. The dry-disk clutch has a light internal member which makes greatly for ease in gear-shifting, and the gearset has exceptionally large roller bearings with a roller spigot bearing. There is an open propeller shaft to the semi-floating Timken rear axle. The frame has a wide and deep section.—Chalmers Motor Co., Detroit.

CHANDLER

Little change is found in this car. The motor is a 3¼ x 5 L-head type with the cylinders cast in blocks of three. Maximum power is developed around 2,400 r. p. m. The plate clutch and selective gearset are in unit with the motor. The rear axle is a three-quarter floating type made by the company. It has spiral bevel gears and a ratio of 4.4 to 1. A torsion tube is used, but the springs take the driving effort. The wheelbase is 123 in. and tires are 34 x 4. Bodies include both touring and roadster types at the same price.—Chandler Motor Car Co., Cleveland.

CHEVROLET

This car is equipped with a small, high-speed four-cylinder motor with overhead valves. This engine is extremely neat, the rockers being enclosed by an aluminum cover, and valves are all laid bare by detaching the cylinder head. There are no valve cages, which fact assists the proper cooling of the valves. Lubrication is on the controlled-splash system, oil being pumped from the crankcase to a sight feed on the cowl board, whence it passes to the main distributing pipe which feeds the troughs into which the connecting rods dip. There are pockets over each main bearing and thence wicks carry a supply to each of the three camshaft bearings. The Autolite electrical equipment is a two-unit system, with Bendix gear for the starting motor. Ignition is by magneto, if the starting system is not taken. Another instance of the individuality of Chevrolet design is found in the amidships location of the gearset. The driveshaft is of the open type, fitted with two universals; drive is transmitted through the springs and torque is taken by a special stay. A semi-floating rear axle is used with straight bevels and Hyatt roller bearings. It is provided with a 4 to 1 gear ratio and the brake equipment is conventional. The Chevrolet line has been altered somewhat, as the six-cylinder car is not being continued for 1916. There is now only the four with either the five-passenger body (The Baby Grand) or a roadster which has the name of "Royal Mail," and the "Four-Ninety," which is a cheaper modification with slightly smaller motor, unit power plant and some other small chassis differences, the main lines, however, being identical for all models.—Chevrolet Motor Co., Flint, Mich.

DORT

Although both roadster and touring types follow the same general idea of design, the latter is a longer chassis and the motor

MODERN EXAMPLES OF V-

1—The Packard, the first of the Twin-sixes, is in unit with the clutch and gearset, which is a new departure for this maker. The narrow width of the V is in contrast to the eight-cylinder motors

2—The National twelve is distinctly different from the Packard, the valves being at the outside of the cylinder blocks. The location of the tire pump is characteristic of the accessibility of the design

3—The Herschell eight is a compact appearing motor with the water pump driven from a front cross shaft

4—The chain camshaft drive in the King eight is one of its distinguishing features, as is the intake pipe

larger. It has a wheelbase of 105 in., and the motor is claimed to have 28 horsepower as a maximum with $3\frac{1}{4} \times 5$ -in. dimensions. The roadster is built on a wheelbase of 92 in. and possesses a 3×4 -in. engine; special attention has been given to the matter of equal waterjacket spacing around all the cylinders, thus making for uniform cooling. The double exhaust manifold feature is unusual to four-cylinder construction. The manifold is internally divided into two passages, two cylinders discharging into each passage to prevent any overlapping. Oil holes are in convenient places. For instance, in the side of the gearbox there is placed a small elbow which aids in the filling of the gearset with oil. Axle bearings are made easy of adjustment by external openings and pins passing through the housing to the bearing carriers. Cantilever rear springs are featured on the Dort. The clutch is a light cone, with six spring plungers pressing the under side of the leather facing. These springs are enclosed in little pressed steel cups that prevent dirt from getting to them.—Dort Motor Car Co., Flint, Mich.

DORRIS

In April, 1915, the first Dorris six was announced, this being an overhead valve motor with a peculiar starter drive, since the starting motor was arranged to operate through the front end gears by means of a special intermediate gear. This model is being continued and a second six, of smaller dimensions, now replaces the four. The latter is a more expensive car with a much higher speed engine, but the design generally is similar. The dashboard in these cars is a part of the chassis and not a body piece, so all wiring, etc., becomes a chassis assembly. Another feature is locating the gasoline tank beneath the driver's footboards so that the filler and gauge come flush with the floor, where they are always visible, a Stewart vacuum tank being used to supply the carburetor. A full range of bodies is available for either chassis.—Dorris Motor Car Co., St. Louis.

DODGE

No changes have been made. The most striking feature of the whole chassis is a device which renders the countershaft in the gearset quite stationary when the high gear is engaged, the "constant mesh" pinions, if they may be so called in this instance, unmeshing as high gear is engaged. The unit power plant with its cone clutch entirely enclosed is part iron and part aluminum, while the cylinder head is removable, the valves being arranged in conventional L-head manner. The body is all-steel, being made in a wonderful electric welding apparatus. All the body plates are held in a gigantic jig furnished with the necessary electrical connections and the passage of the current then spot welds the panels along every junction line. The result is a body in which strength and lightness are combined. On the rear axle the brake rods and the equalizing links are laid out in a neat way, there being only two long pull rods needed, these running forward along a line just above the torsion tube which encloses the driveshaft. Electrical equipment consists of the North East single-unit machine, which operates at 12 volts and is driven by silent chain from the camshaft.—Dodge Bros., Detroit.

DISPATCH

The Dispatch chassis includes a four-cylinder motor and a part that the makers describe as a "control unit." This takes the place of clutch, gearing and differential, and provides four speeds with direct drive on all four. Power is transmitted by friction, but the construction is unusual, containing many details of great ingenuity.—Dispatch Motor Car Co., Minneapolis, Minn.

DETROITER

The 1916 Detroider has a four-cylinder unit power plant. The tires are 33×4 in. front

TYPE EIGHTS AND TWELVES

5—The Cadillac was the leader in the eight-cylinder movement. As may be noted, this type permits the mounting of much of the equipment in the V between the blocks of cylinders.

6—The Briscoe eight is one of the few which is distinguished by overhead valves. There is practically nothing between the cylinder blocks except the carburetor, which is out of the way.

7—The Pathfinder twelve is another which has overhead valves and here, too, the clear space between the cylinder blocks is noticeable.

8—The Mitchell eight has its valves inside the V, though there is little else between the blocks except the carburetor.

6

7

8

and rear, and ignition is by high-tension Dixie magneto. This is one of the cars using the Dyneto single-unit lighting and starting dynamo.—Briggs-Detroit Co., Detroit.

DANIELS

A robust chassis of simple outline with Herschell-Spillman motor, is the briefest description of the Daniels eight, which is a new car only announced quite recently. The H-S eight has many special points of design, one being the use of the oil pressure relief valve to turn a stream of oil on the timing gears. Cylinders are stag-

gered so as to allow the use of side-by-side connecting rods. On this motor a Zenith duplex carburetor is mounted and the valve alley is otherwise clear of all incumbrance, as the Westinghouse starting motor is removed to the crankcase side, the timer being arranged vertically at the rear end of the camshaft where it is very accessible and yet out of the way. For driving the Westinghouse generator a cross shaft is arranged at the front end of the camshaft, this cross shaft having the generator at one end and the water pump at the other, and the layout is almost ideal from the viewpoint of accessibility. The chassis follows conventional lines and is entirely suitable for the heavy bodies which the motor power is well able to handle. A large choice of bodies is offered, including two touring cars, a roadster, landaulet, limousine and sedan.—Daniels Motor Car Co., Reading, Pa.

CROW-ELKHART

The new model is the largest which will be produced this year and follows the same lines as previous Crow cars. The motor has a detachable cylinder head and is intended for high-speed work; it is possible to remove any connecting rod and piston without disturbing a main bearing. The body is a new design with built-in windshield. The new car is much the same in general specifications as the previous model which it replaces, but an immense reduction in price has taken place.—Crow Motor Car Co., Elkhart, Ind.

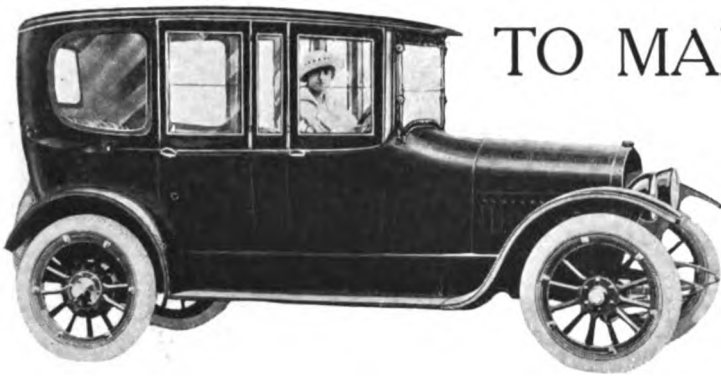
COLE

The only model continued is the eight, which is equipped with a Northway unit power plant consisting of a cone clutch and three-speed gearset. The bore and stroke are $3\frac{1}{2} \times 4\frac{1}{2}$. The motor is an L-head and the cylinders are detachable. A feature of the motor is the use of aluminum pistons of the hour-glass type. The adoption of this piston has prevented smoking and made the motor smoother and livelier. The wheelbase has been increased 3 in. to 126. Tires are $35 \times 4\frac{1}{2}$ and the gear ratio is 4.47 to 1.—Cole Motor Car Co., Indianapolis, Ind.

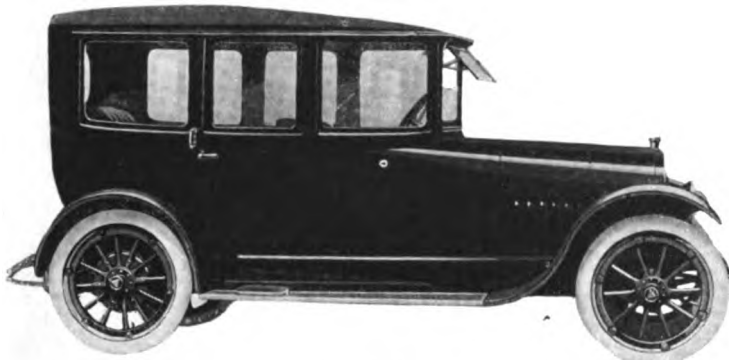
ENGER

The Enger is distinctive in that it has overhead valves, operated from a camshaft located in the usual place, by long push rods and rockers, the valve tappet adjustment thus being very accessible, as it consists of cap screws in the rocker ends. All twelve cylinders are cast in one single block with the upper part of the crankcase, and the cylinder rows are staggered to admit side-by-side connecting rods. Lubrication is thorough, oil being pumped through the hollow camshaft to the tappet mechanism and through the crankshaft for the other bearings. For the camshaft a chain drive is used and the fan is also operated from the camshaft. Short ignition wires are obtained by locating the distributor upon the camshaft at the upper end of a vertical shaft which drives the oil pump, this being situated in the crankcase near the center of its length. As there is no valve adjustment save that on the rockers, the space in the V is utilized for the Westinghouse generator, which is driven off the same shaft that carries the fan. Another unique feature for a V motor is the use of the water-jacketed intake manifold as the outlet pipe from the cylinders, the middle of the manifold having the hose connection for the radiator.—Enger Motor Car Co., Cincinnati.

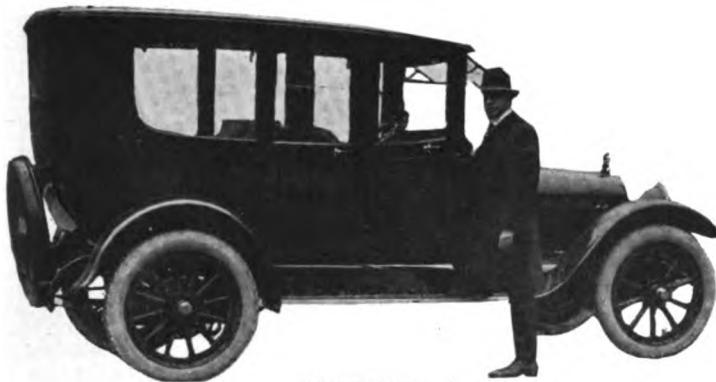
TO MAKE TWO CARS OUT OF



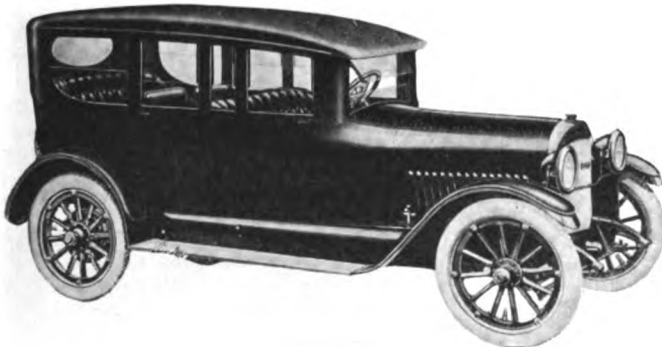
JACKSON



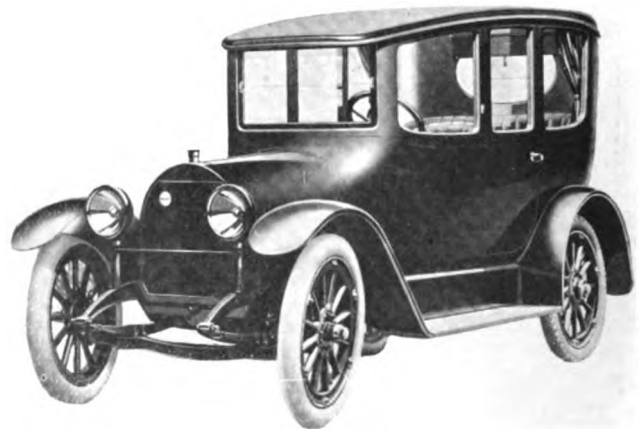
HUDSON



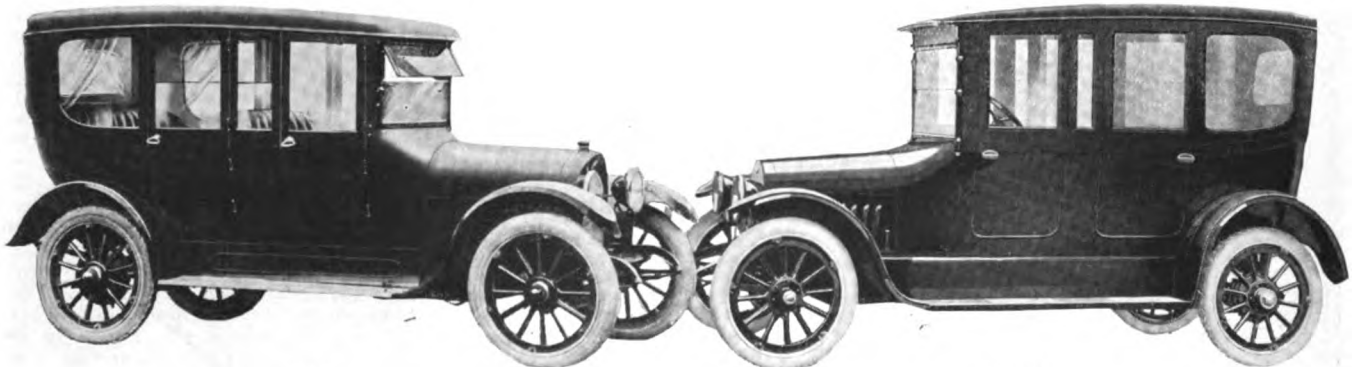
CHALMERS



PAIGE



KISSEL



REO

REGAL

THAT the detachable top, which during the past twelvemonth has come into such prominence, is destined not only to remain a fixture in the trade, but to become an economic factor of increasing importance, seems assured. The progress that has been made during the year has placed this type of top in a position close to the heart of the prospect, and what is still more important, close to his pocketbook. And this, coupled with engineering advances which have made the top a thing of beauty—and without rattles—augurs well for its continued popularity.

Today practically every popular-priced car can be had with a detachable top. One year ago there were probably not more than three or four manufacturers who regularly supplied such equipment. Briefly, demand has stimulated the supply.

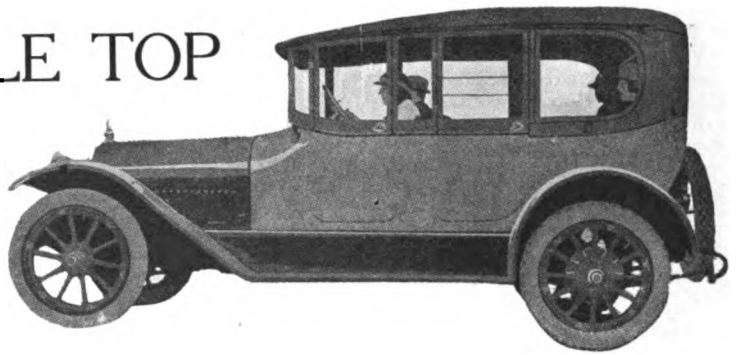
The benefit to the dealer is almost readily appreciable—the appeal to the owner which comes from the possibility of having two cars for about the price of one, the comfort for winter driving.

ONE—THE DETACHABLE TOP

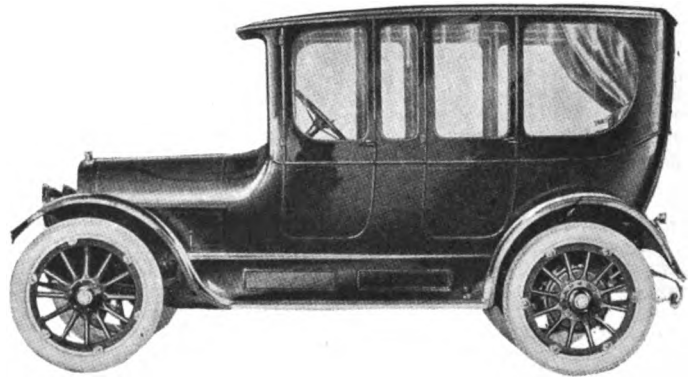
The benefit to the garageman is only slightly less apparent and might be classed under these heads:

- 1—Decreased dead storage during the winter.
- 2—Increased live storage.
- 3—Increased garage business.
- 4—Increased gasoline and oil sales.
- 5—Increased sales of accessories and tires.
- 6—Storage of winter tops during the summer.

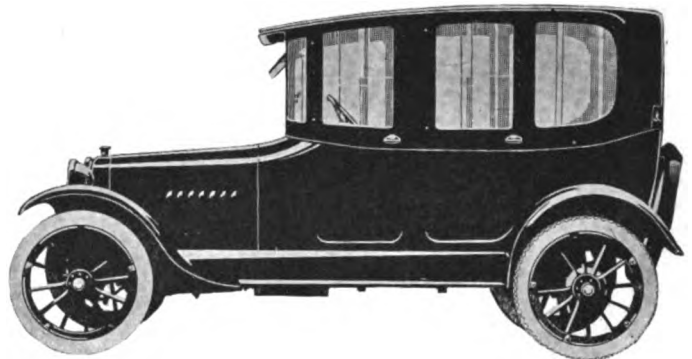
As for the tops themselves, there is much that can be said in their favor. Perhaps the most noteworthy feature is their better appearance. When first they appeared they were not always all that might be desired insofar as their appearance was concerned. In other words, in not all cases did they seem to fit properly. But even a cursory glimpse of the newer types reveals that great strides have been made. In fact, in the majority of cases it now is scarcely possible to determine the line of demarcation between the detachable top and the car body.



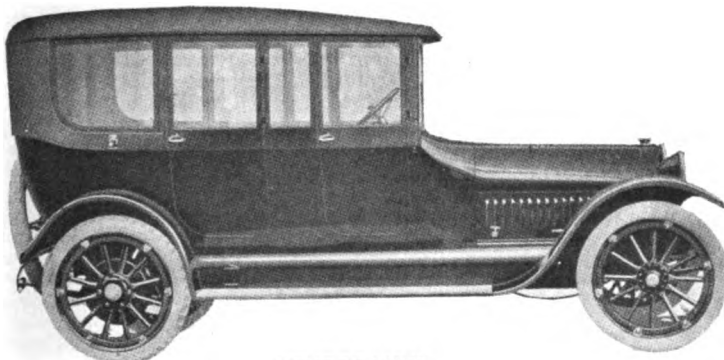
HAYNES



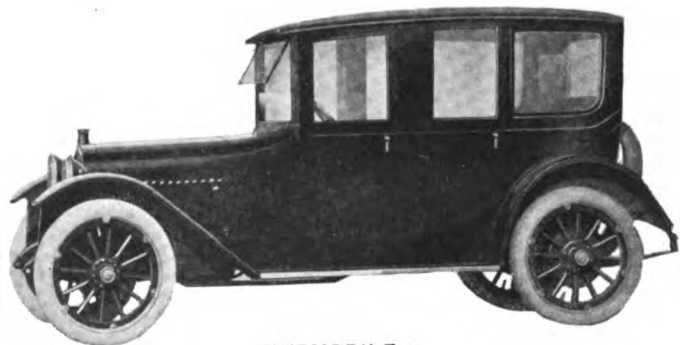
OVERLAND



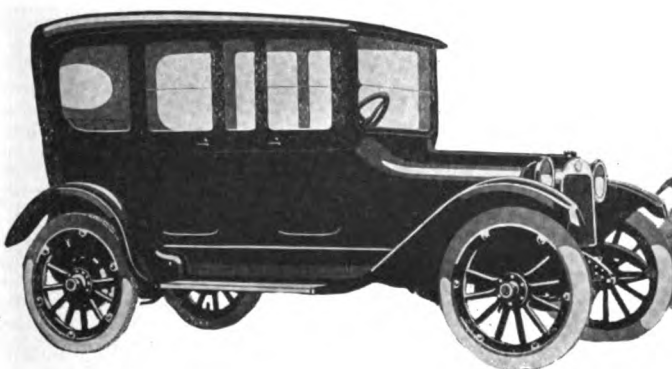
SAXON



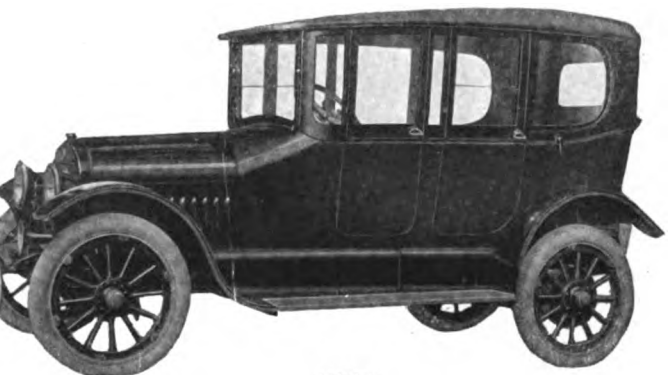
STUDEBAKER



HUPMOBILE



DODGE



KING

ELCAR

This car is a model of the Pratt-Elkhart under which name previous models were known. It is a conventional type of four-cylinder chassis with five-passenger or roadster body and a high-speed motor with what has been called an F-head cylinder; that is, the intake valves are in the head with the exhaust valves in the customary position. There is a unit power plant with cone clutch and a special type of rear axle having double internal brakes.—Elkhart Carriage & Motor Car Co., Elkhart, Ind.

EMPIRE

There is a light six in addition to the four, which has been largely remodeled. The new four has a T-head high-speed motor in place of the L-head type of last year. Otherwise the main features of the four-cylinder chassis are but little altered. The six adopts the new, small Continental motor, which is also a high-speed type, and a very clean, rigid engine. This motor has a bore of $3\frac{1}{4}$ in. and stroke of $4\frac{1}{2}$ in., which is a difference from the 3 x 5-in. six which was originally scheduled for this model. To the four either touring or roadster bodies are fitted, but the six is at present listed with a five-passenger body only.—Empire Automobile Co., Indianapolis, Ind.

FARMACK

This is an entirely new four-cylinder car, made by a new company, and has a distinctive engine with overhead valves and an overhead camshaft also. Three chains are used at the front end, one a triangular drive, including the crankshaft, an adjustable pinion and an intermediate, the second from the intermediate to the camshaft, and a third for connecting crankshaft and generator direct. All the valves seat directly in the detachable head and are fully enclosed. Oiling is by controlled splash with a separate feed to the camshaft. The rest of the chassis follows ordinary practice and the car is sold at present with only a five-seated touring body.—Farmack Motor Car Corp., Chicago.

FIAT

With its four- and six-cylinder chassis Fiat has made practically no changes, the only alterations being in the universal and the steering ball joint, of which both have had slight improvement directed toward increasing their durability. The Fiat design is strongly similar to that of the Italian car of the same name, and is thus largely different from conventional practice in America. The main object is to provide high efficiency and great durability, these features being obtained with a very graceful chassis. Though largely sold with custom-built bodies, there are some standard Fiat body equipments, and these have been considerably changed. One new model in particular, known as the Riviera, is a molded design with a small central cowl, and has the hood shape continued rearwards till it merges imperceptibly into the more square tonneau. An extensive use of very high-tensile chromium steels is a characteristic of the Fiat chassis and many steel parts are hardened which are not so treated in conventional practice.—Fiat Co., Poughkeepsie, N. Y.

FORD

At this time there is no inkling that Ford intends to make any alteration in the model T as it is known the world over. New prices have been put on the three closed body types that Ford turns out, the coupelet, the town car and the sedan. The Ford chassis has

a wheelbase of 100 in. and is fitted with 30 x 3 front and 30 x $3\frac{1}{2}$ rear tires. The characteristic front and rear transverse springs, planetary gearset in unit with the $3\frac{1}{4}$ x 4-in. L-head motor, and simple drive through enclosed shaft, are features. Attractive body work has been put on the sedan and coupelet models. Cloth upholstery is used in the sedan, which has individual front seats, the right one folding to allow entrance to the rear seat. There is a single wide door on either side and the finish is excellent.—Ford Motor Co., Detroit.

FRANKLIN

Air-cooling, light weight and elliptic springs are the chief characteristics of this car, which is equipped with a six-cylinder motor, $3\frac{1}{2}$ x 4. A single-unit starting and lighting system is used. The gearset is a three-speed design, located amidships, and the rear axle is a semi-floating design made by the company; it is equipped with a bevel which is neither straight nor spiral, but is a skew bevel, the teeth being straight in themselves but angular to the diametral line of the gear. The effect is the same as with the spiral bevel with its curved teeth. Hotchkiss drive is employed, both torque and propulsive stresses being supported by the rear springs, and the flexibility of this construction is such that a very soft start may be obtained even should the clutch be handled roughly; the bevel pinion can make a half turn or more without doing anything but compress the springs.—H. H. Franklin Mfg. Co., Syracuse, N. Y.

F. R. P.

A new F. R. P. car is now ready with an overhead valve engine with four cylinders. It will be made in small quantities in three models, the motor bore and the wheelbase being the chief variations. The chassis only will be sold and at a high price, the car containing a quantity of very costly steel and much fine workmanship. It is a chassis intended to have a capacity for high speed, the motor being highly efficient, and weight has been studied closely. In many respects the design savors of the European school, having a midships location for the gearbox and a transmission service brake, while there are four speeds with a high gear of 3 to 1.—Finley Robertson Porter Co., Port Jefferson, N. Y.

GLIDE

Throughout 1915 there has been but one model Glide, a four, and for 1916 there will again be but one car; this, however, is a six. It has a Rutenber, high-speed motor with Westinghouse electrical equipment, unit power plant, an open type driveshaft and long, three-quarter elliptic rear springs with Hotchkiss drive. A special type of sedan body is available, which is convertible into an open touring car by detaching the upper structure. This operation is easily performed and the attachments such that both open and closed bodies are complete in appearance individually.—Bartholomew Co., Peoria, Ill.

GRANT

The Grant six is bigger, but there is no difference in the price. Improvement has chiefly been in the power of the motor and in the outward lines of the body, although there are a number of lesser mechanical refinements. Cowl and body sides have been raised, and the slope of the bonnet conforms to the general line, with the radiator, still of the rounded form, of larger size. Increase of cylinder diameter from $2\frac{1}{4}$ to 3 in., with the stroke remaining at $4\frac{1}{4}$ in.,

gives about 10 per cent more power, the displacement profiting by the enlargement to the extent of about 15 cu. in. Instead of using the former mushroom type of valve tappets, the motor now has tappets of roller design. Overhead valves are used, the head being detachable and carrying the rockers, springs and valves. In the cooling system, the only change is in the radiator, which is now of the form in which the shell and core are separate, the frame supporting the more delicate core against weaving or other causes that might spring leaks. The rear suspension is by cantilevers, with the drive taken through a torsion tube that surrounds the driveshaft.—Grant Motor Co., Findlay, O.

HALLADAY

This is a new model with 3 x 5-in. six-cylinder engine. It has a unit power plant with Westinghouse lighting, ignition and starting apparatus, and Hotchkiss drive through long, three-quarter elliptic springs. There is a wide range of open and closed bodies, the standard touring car being for five passengers.—Halladay Motor Car Co., Streator, Ill.

HARVARD

This is a new, light four-cylinder car. The seat is supplied with deep upholstery and the Pantasote top fits snugly on the windshield when erected. On the same chassis a coupe body is also fitted and sells for a very moderate price. The car is geared rather higher than the average and should be capable of a fair speed.—Pioneer Motor Car Co., Troy, N. Y.

HAYNES

A light six with $3\frac{1}{2}$ x 5 L-head high-speed motor is the only model for 1916; the four has been dropped. The six is practically unchanged. The Haynes is manufactured almost entirely in the Kokomo factory, motor, axles, gearset being designed and built. The front end of the motor is hung from a shackle at the center of a forged cross member of the frame. For lubrication there is a combination splash and pressure system operated by a plunger pump. The carburetor bolts direct to the cylinder casting, as the intake manifold is internal. A large crankshaft is used. Light reciprocating parts assist the general rigidity of the design in keeping down vibration. One noticeable point on the chassis is, however, the very high arch in which the frame is upswept over the rear axle, this being to permit the use of very long semi-elliptic springs which are underhung, being clipped beneath the axle. A detail of the axle which makes for neatness and efficiency is the employment of double internal brakes. The price has been reduced for 1916.—Haynes Automobile Co., Kokomo, Ind.

HERFF-BROOKS

Making a four- and also a six-cylinder motor the Herff-Brooks company is still an adherent to the singly cast cylinder. The six-cylinder motor has seven crankshaft bearings and develops its maximum power at 1,500 r. p. m., while the four has five main bearings and is rated to give maximum output at the same speed. Splittorf magneto ignition is employed and Apeldo two-unit electrical apparatus for starting and lighting. Both chassis have unit power plants with cone clutch and three speeds. For the rear axles a special design, manufactured by the company, is used, this having straight bevel gears and double internal brakes. Listed with either touring or roadster bodies the two cars sell for very moderate prices.—Herff-Brooks Corp., Indianapolis.

HOLLIER

Accessibility of the valves is noteworthy in this engine, because there is nothing in the V between the two blocks of cylinders save the carbureter and the combination oil filler and breather pipe. The starting and lighting unit is attached to the yoke passing around the flywheel, at the right of the gearset, and is thus out of the way, though readily accessible. Unlike most connecting rod constructions whereby either the forked-end design or the side-by-side arrangement are used, the Hollier designers chose what is termed the Gnome form of rod attachment. One rod has its entire bearing on the crank-pin, but it has forged on its side a knuckle or boss that takes the other rod. The valves are operated by a single camshaft, which, together with the rockers, is assembled to a plate that bolts to the top of the crankcase between the blocks of cylinders. Drive is by helical gearing. The timing gear housing also acts as a mounting for the fan, and for the fan driving pulley, as well as a support for the front end of the engine and the mounting of the starting crank. There are not many unconventional points in the design aft of the motor except the cantilever rear springs. Also the rear axle has two sets of expanding brakes, there being two drums one within the other.—Lewis Spring & Axle Co., Jackson, Mich.

HUPMOBILE

By enlarging the power plant from a bore of 3 3/8 in. to 3 1/2 in., the 1916 Hupmobile has been given 46 cu. in. more piston displacement, and with the stroke still 5 1/2 in., the engine is now possessed of 243 cu. in. The Bijur lighting and starting equipment replaces that used last year, and this change, in conjunction with the motor increase, are practically the only alternations in the mechanism, although the body design is different from the previous car in some respects, and the price has been brought down. A short and a long chassis are offered, the former having a wheelbase of 119 in. and taking the five-passenger touring and roadster bodies, whereas the 134-in. chassis is called upon to carry the eight-passenger body. This is a body in which the folding auxiliary seat has been so constructed that it is wide enough to seat three if necessary. Practically the only difference in the two chassis other than strengthening the long frame wherever necessary, is the spring length. Long underslung semi-elliptics are used in the rear, 60 in. overall on the larger chassis and 52 in. on the shorter. One feature for comfort in the Hupp cars is in the low placing of the seats with the backs lower than the fronts so as to give a comfortable position to the occupants. A point in the body work is the overlapping of the upper windshield glass over the lower for about an inch, this preventing water or cold air from getting into the front compartment. The Hupmobile motor is of the block-cast type with silent chain drive for the camshaft and fan. Ignition is by Atwater Kent system, and oiling by the flywheel pump.—Hupp Motor Car Co., Detroit.

INTER-STATE

There is only one model—a four with overhead valves. The price has been reduced for 1916 without affecting the equipment. There is a Remy lighting and starting equipment which also cares for ignition and a Schebler carbureter, bolting direct to the cylinders, since all manifolding is internal. The gearset is on the rear axle. The bodies offered include a five-passenger touring and a roadster model.—Inter-State Motor Co., Muncie, Ind.

MAKE V-TYPE MOTORS

Abbott—8
Apperson—8
Cadillac—8
Cole—8
Daniels—8
Jackson—8
King—8
Mitchell—8
National—12
Oakland—8
Oldsmobile—8
Packard—12
Peerless—8
Regal—8
Ross—8
Standard—8
Stearns-Knight—8
Briscoe—8
Enger—12
Partin-Palmer—8
Pathfinder—12
Scripps-Booth—8

JACKSON

A four and two eights is the Jackson line for 1916. Both eights use the Northway power plant. These engines are unique in that the cylinder blocks and the right and left halves of the crankcase are integrally cast, the division being vertical. The motors have detachable cylinder heads. Another Jackson feature is the use of elliptic springs both front and rear, and these are very rigidly attached to the frames. More clearance than usual is allowed, so that the springs have an extra wide amplitude. Also the steering lock is extra wide.—Jackson Automobile Co., Jackson, Mich.

JEFFERY

The Jeffery Chesterfield six has been so successful that it is hardly altered for 1916, but the four-cylinder car has been remodeled throughout, to meet the demand for a lower price and still more power. The new car has a slightly larger motor than the old model, and a striking change is the adoption of a unit power plant in place of the amidships gearbox which has previously been a Jeffery feature. This gearbox has three speeds instead of four, and the change over to unit power plant is also accompanied by the adoption of a new clutch which is a dry disk pattern. The rear axle, too, is novel, being a semi-floating type with a cast differential case and large, conical steel sleeves. Drive is on the Hotchkiss principle with long, three-quarter elliptic springs. Back of the gearset there is a powerful transmission brake, operated from the emergency lever, this being a contracting brake, as are the brakes on the rear wheels. The frame sides are straight from end to end, but the body is laid out so as to have ample width. The body sides behind the cowl are quite straight on the seven-passenger car, and the front seats are divided. These seats have high backs which are curved like an armchair, but there are no high sides. A wide choice of bodies is given, including five- and seven-passenger sedans. Lubrication is com-

bined force feed and splash, a plunger pump feeding the main bearings and also supplying dip troughs. An addition to the lubrication scheme is the provision of a lead from the pump to the bearing of the idler gear in the timing case, in order to make sure of the durability of this journal. In equipment a new one-man top is supplied and a Carter fuel feed tank to raise gasoline from the cylindrical gas tank at the end of the chassis. The windshield is a new model, and the cowl board bears a new oil gauge. In front of the dashboard there is a terminal block containing the fuses, and the electrical equipment is now two-unit Bijur.—Thos. B. Jeffery Co., Kenosha, Wis.

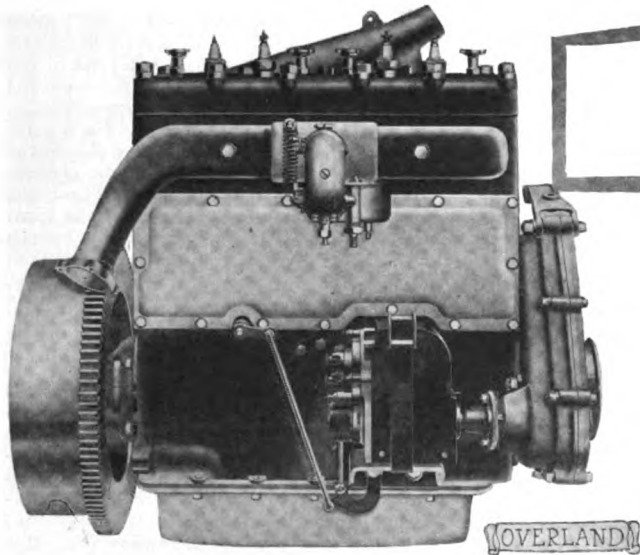
KING

The King eight introduced last year is being continued with a few small refinements, these being mainly in the body. The motor is of the type in which forked connecting rods are used and another feature which has proved satisfactory is the cantilever rear suspension. A new model, also an eight, has just been announced, this being intended for seven-passenger bodies; it is a slightly more costly car, and the motor is quite different in detail. Instead of the forked connecting rods the side-by-side pattern is employed, and the cylinders are staggered slightly to permit this. Light aluminum pistons, of a special design which prevents any possibility of smoking, are used, and the engine is intended to have a high speed capacity. The motor has chain gearing, one chain for the camshaft and one for the generator, the latter being driven off a double idler sprocket which is used to adjust the camshaft chain. High pressure lubrication is used and the engine is conspicuously clean, there being no accessories in the valve alley. This is done by placing the vertical timer shaft at the rear end of the camshaft and locating the generator low down on the crankcase. The starting motor is mounted on top of the clutch housing, and the tire pump on the side of the gearbox. As a result the valves are perfectly accessible. Another point of peculiarity is the transmission shaft brake, just aft of the gearbox, connected to the emergency lever. The cantilever springs used on the earlier model are again employed for the new car, but a modification in the mounting has allowed the frame and body to be lowered quite perceptibly without affecting the clearance. The folding steering wheel used on the other King cars is continued for the smaller car, but is not used on the other, as the greater amount of space permits an easy entrance on the driver's side without a special wheel.—King Motor Car Co., Detroit.

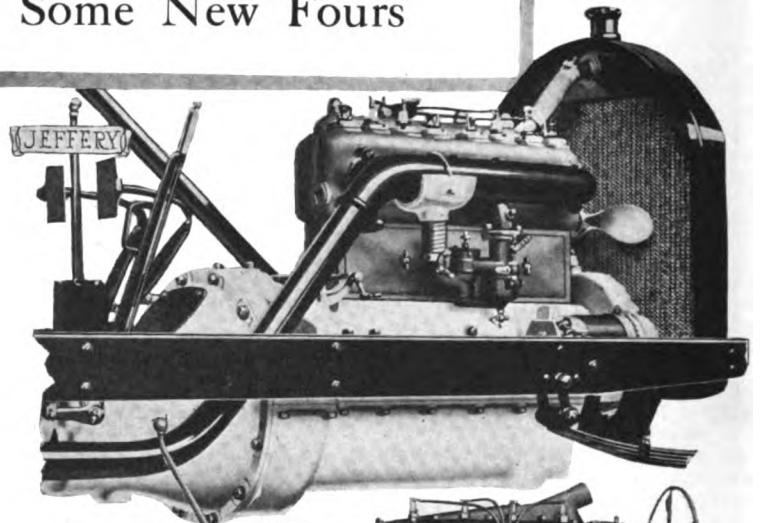
KISSEL

The Kissel company has a strong feature in its "all year" body, which is either open as a touring car or enclosed as a sedan, the upper structure being readily disposed of, leaving a fully open car. When closed either coupe or sedan effects are produced. The four-cylinder chassis is new and the six is a development from the 1915 car. The motor is Kissel built and a high-speed type having block cylinders with integral intake manifold. Special care is taken to eliminate vibration, first by using a strong crankshaft and a rigid crankcase, and secondly by balancing up the set of pistons and rods for each motor. Large valves are used, these being more than half the cylinder bore in diameter, and they are composite, having nickel steel heads on carbon steel stems. The rear axle, which is also specially designed, has two points of interest. The brakes are double, side by side, contracting.

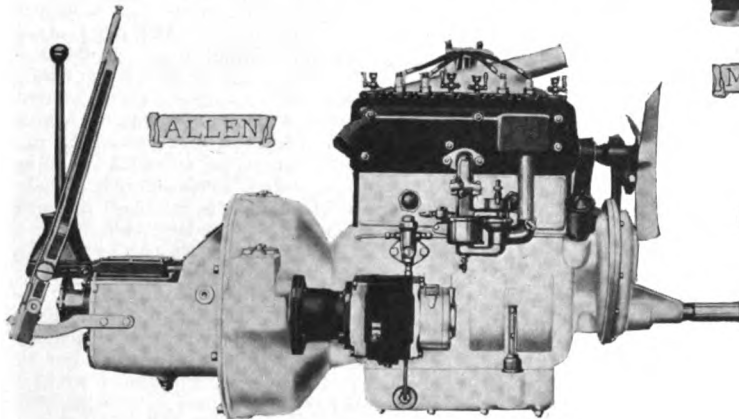
Some New Fours



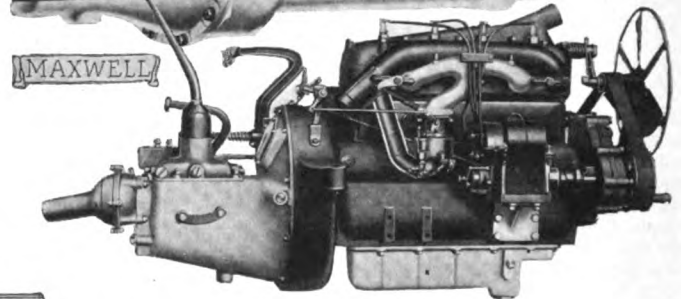
OVERLAND



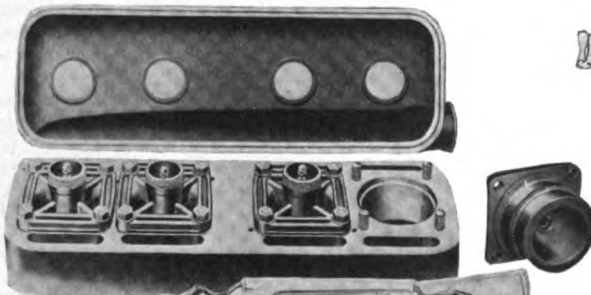
JEFFERY



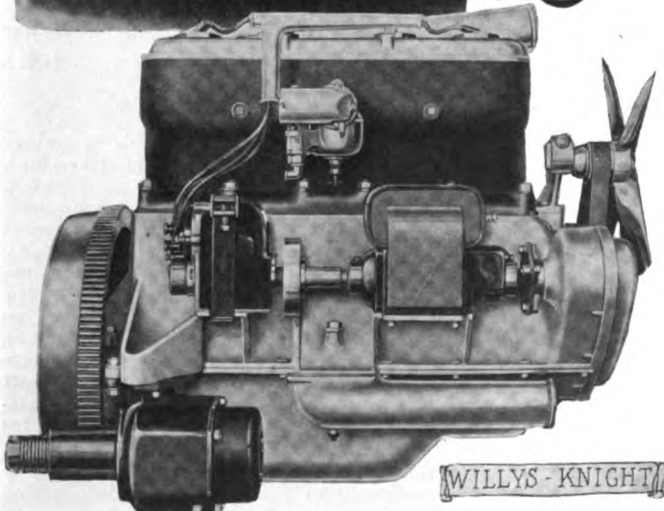
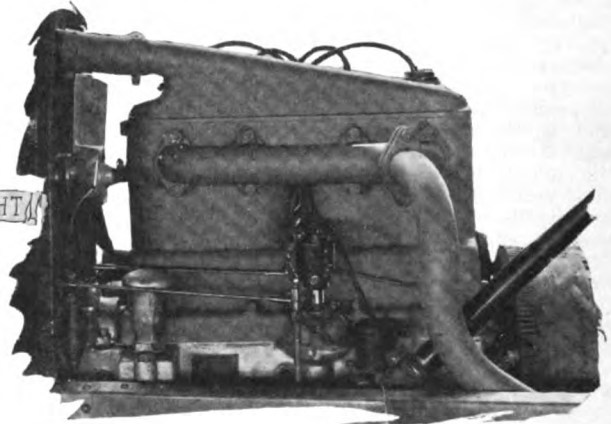
ALLEN



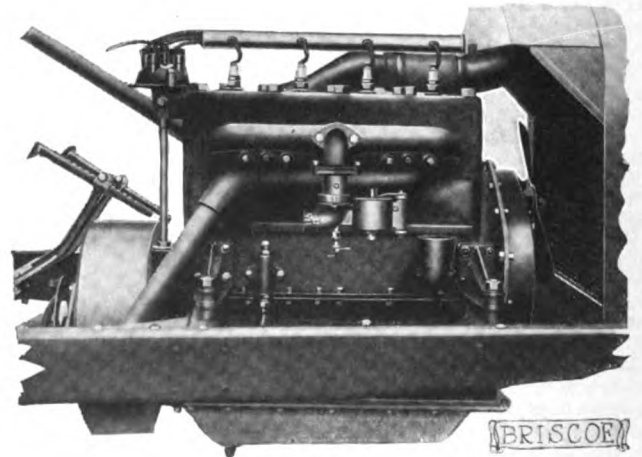
MAXWELL



MOLINE-KNIGHT

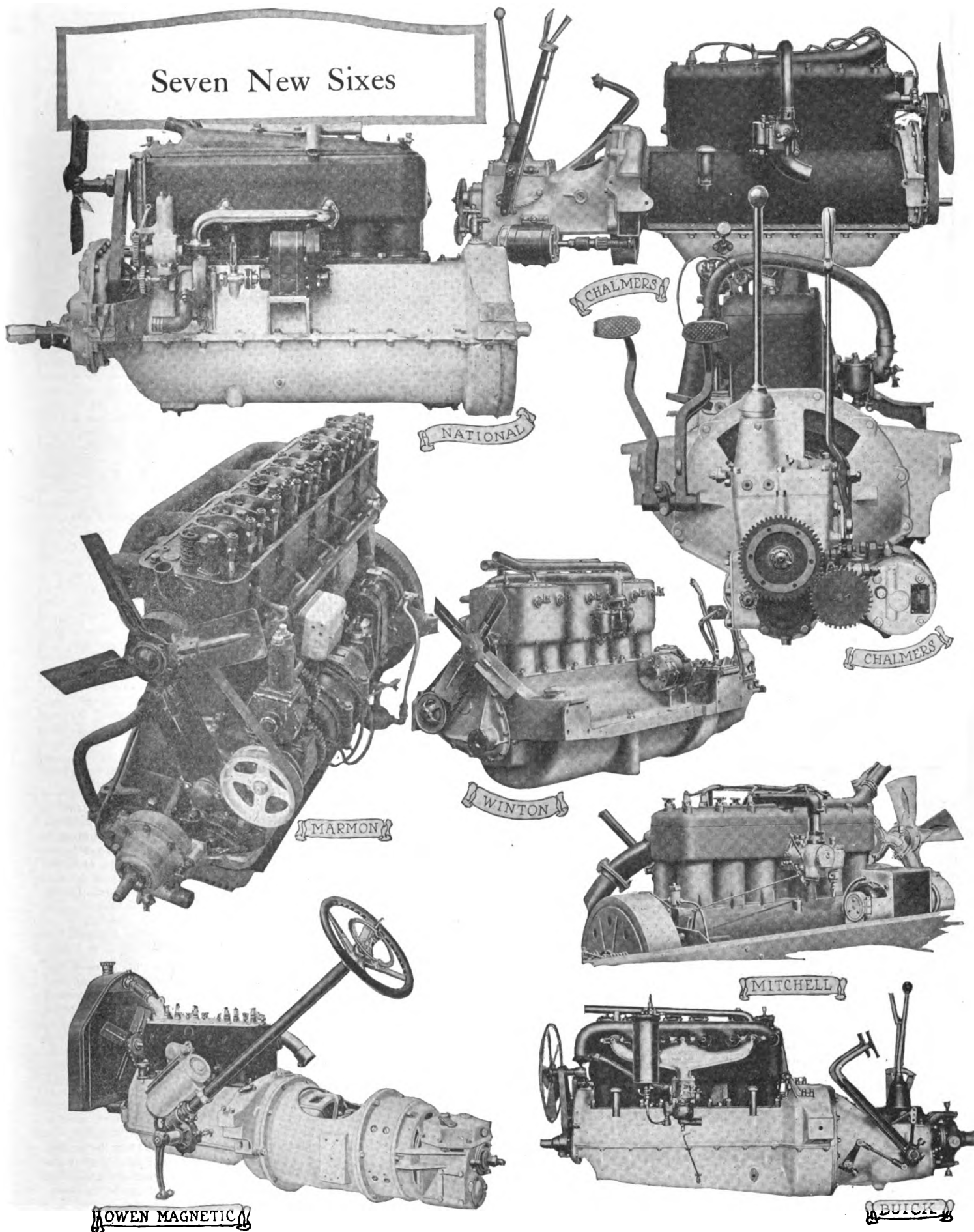


WILLYS-KNIGHT



BRISCOE

Seven New Sixes



MAKE SIXES EXCLUSIVELY

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Chalmers
Chandler
Davis
Dorris
Franklin
Glide
Grant
Halladay
Haynes
Hudson
Kline
Locomobile
Luverne
Madison
Marion
Marmon
McFarlan
Moon
Owen-Magnetic
Paige
Pierce-Arrow
Pilot
Premier
Republic
Singer
Stewart
Sun
Velie
Westcott
Winton

Another feature of note is the remarkable length of the bevel pinion shaft, giving great rigidity. Returning to the all year bodies, the tops of these have frames of heavy white ash and elm, with sashes of mahogany. The frames are covered with sheet steel and aluminum and the roofs are three ply white-wood covered with canvas. It is claimed that the materials used for the roof and its construction are such that warping is impossible. Inside the fittings are luxurious. Leather trimmings are employed, there are dome lights. On the two chassis twelve different body styles are available; three on the four and nine on the six.—Kissel Motor Car Co., Hartford, Wis.

KLINE

A six of rather shorter stroke than usual but otherwise on conventional lines is the 1916 Kline. The motor dimensions are $3\frac{1}{4}$ x $4\frac{1}{2}$ in., and 46 horsepower at 2,200 r. p. m. is the motor performance claimed. The electrical equipment is all Westinghouse, lighting, starting and ignition. Two bodies, a five-passenger touring and a roadster for either two or three are offered at the same price, and the tires are 34 x 4 in.—Kline Motor Car Corp., Richmond, Va.

LENOX

The Lenox speed car is a large four, $4\frac{1}{4}$ x $5\frac{1}{2}$ in., and is claimed to be able to do

65 m. p. h. in stock form. Although a speedster, it is a thoroughly equipped car, having a top with curtains and a windshield, etc. There is also a starting system and Westinghouse battery ignition. The car commands a fairly high price. The other Lenox is a six, which is a five-passenger car, also intended for fairly rapid travel. Both cars are geared moderately high, the four $3\frac{1}{4}$ and the six $3\frac{1}{2}$ to 1.—Lenox Motor Car Co., Hyde Park, Mass.

LEXINGTON

Neither the four nor the six Lexington is strictly a new chassis. The four was new last year when the motor was changed for a Teetor high-speed T-head power plant, and this same engine is still being used. The six was also new about a year ago, and, like the four, is continued with but little change. The Lexington cars have an interesting detail in the Moore multiple exhaust manifold, which is fitted to both models. This exhaust branch is so cast that the gases escaping from each cylinder are provided with individual passages and cannot interfere one with another, the idea being to relieve back pressure as much as possible. Three- and six-passenger bodies are provided for the six, and a five-passenger body for the four-cylinder chassis.—Lexington-Howard Co., Connersville, Ind.

LOCOMOBILE

For 1916 the Locomobile chassis are quieter, lower and better sprung. Great pains have been taken to eliminate any possibility of rattle throughout the car, and the engine has been quieted by enclosing the valves and paying more attention to the gears. In the chassis there is one entirely new part, the dry disk clutch, which has sixteen plates. The frame of the car has been lowered 3 in., and the running-board brought down to about half this amount. Sundry improvements have been made in the dash-board fittings and switches, many of the latter now being arranged so that they may readily be operated by the driver's foot. New lamps have been added, one to illuminate the tonneau, and another lights up when the door is opened, casting its rays upon the step. Starting and lighting equipment is Westinghouse. A magnetically operated pinion shift is used for the starting motor. This has a switch which is operated by a relay, so only a light push button has to be touched in order to start the car. Magneto ignition is adhered to, the system employed being Bosch dual. Four speeds are provided. There are radius rods as well as a torsion member. An interesting detail is the use of two concentric brake drums. There is a choice of either standard or custom built bodies.—Locomobile Co. of America, Bridgeport, Conn.

LOZIER

Neither the six- nor the four-cylinder Lozier is a new car. The four is offered with touring and roadster bodies and the six with touring body only. Special pains are taken with the equipment and the four is supplied with an extra tire as well as the demountable rim. A feature of the four is the use of a four-speed gearset with direct on third, but this is deemed unnecessary for the six, which has but three speeds. The axles are also different, the four having a pressed steel case and the six a built-up

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Hupmobile
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Maxwell
Mecca
Mercer
Metz
Moline-Knight
Monroe
Morse
Spaulding
Sterling
Trumbull
Vixen
White
Willys-Knight
Wood

pattern, both being full-floating. Magneto ignition is used for both cars and Gray & Davis starting and lighting equipment. Both cars have multiple disk clutches running in oil and pressure lubrication, the four being full pressure without any splash and the six being provided with dip troughs as well as the pump feed to the bearings.—Lozier Motor Co., Detroit.

LUVERNE

Called by its makers the "big brown Luverne," this car is essentially a large machine with plenty of power and a roomy seven-passenger body of the touring type. Large tires and a full equipment, including a power tire pump, are given. This is one of the largest cars using a single-unit lighting and starting machine, a Splittorf-Apelco unit caring for the 4 x 5 six-cylinder engine.—Luverne Automobile Co., Luverne, Minn.

MADISON

The Madison chassis with 3 x 5-in. Ru-tenber motor is conventional except that the rear three-quarter elliptic springs are much above the average length. Seven-, five- and four-passenger touring cars are made, and a two-seated roadster, all on the same chassis. Remy apparatus is used, the generator being combined with the ignition dis-

Simplified System

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tributer and the motor separate.—Madison Motors Co., Anderson, Ind.

McFARLAN

One chassis with two motors of similar design but different size is the 1916 program. The principal innovation is the adoption of very heavy, flat cantilever springs. The motors differ in little beside dimensions, both being T-head with very large valves. The speed capabilities have been increased by the adoption of aluminum alloy pistons. Improving the lubrication by adding a plunger pump gives a pressure supply direct to the main crankshaft bearings.—McFarlan Motor Car Co., Connersville, Ind.

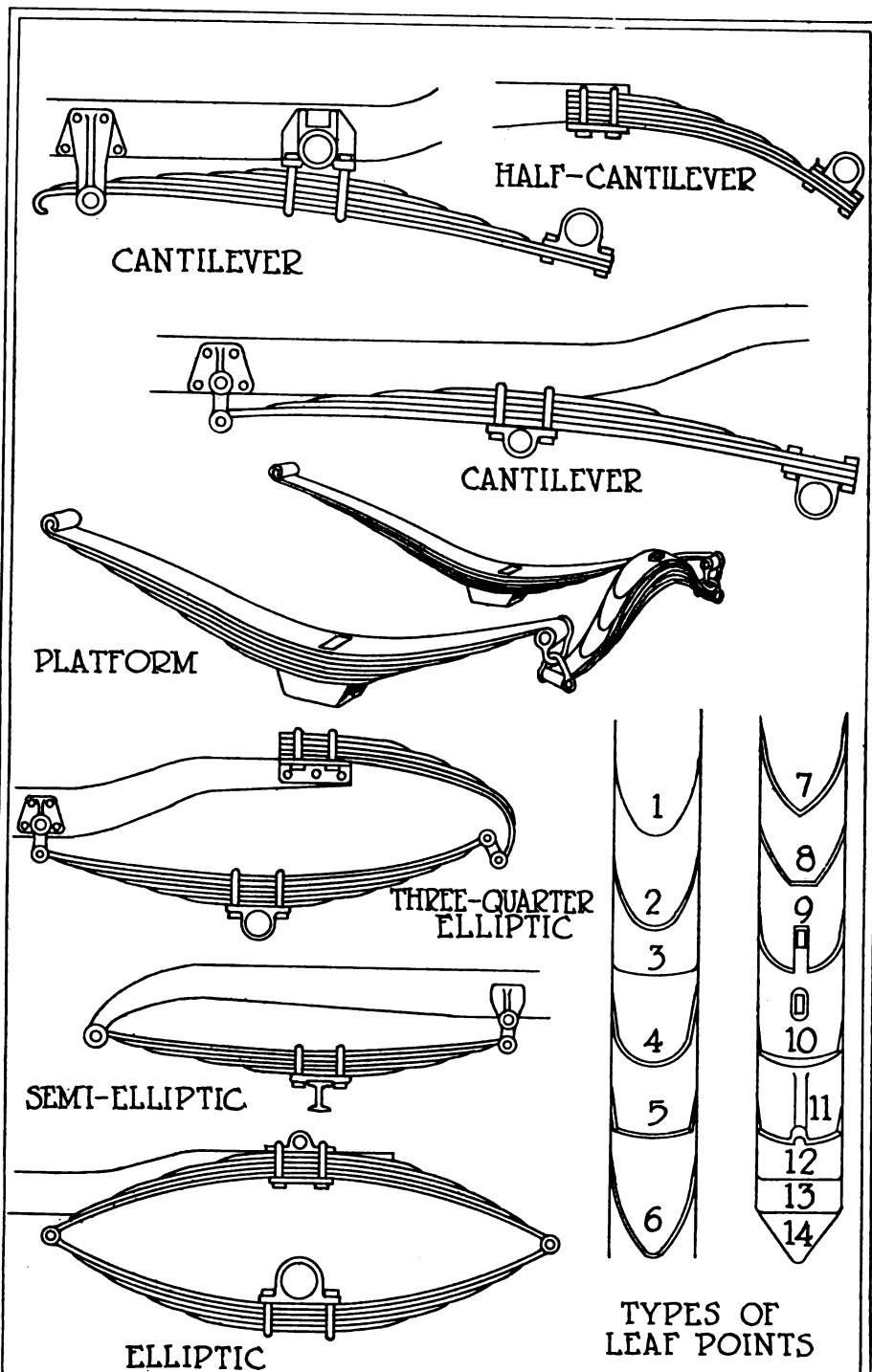
MARION

The new series Marion was announced last May. It is considerably different from previous Marions, being a light chassis with 3 x 5 in. motor of high-speed type. It is an assembled car. On the unit power plant the accessories, notably the Westinghouse generator and ignition unit, are accessibly disposed, being mounted high up. The starting motor is also set on a level with the cylinders; the carburetor bolts direct to the cylinder block; and the oil filler cap is brought up on the carburetor side close to the starting motor. The valves are on the right and the cylinder head detachable. The axle is built up with a cast center case and tubular sleeves, and the differential can be removed by taking off the cover plate and then unscrewing four bolts. The three-quarter elliptic rear springs are taken beneath the axle and are extra long and wide to enable them easily to care for the Hotchkiss drive stresses. The five-passenger body is reasonably short, so the back seat is not too far over the rear axle. It is a streamline design with concealed hinges and flush upholstery. A distinctive shape of radiator casing and a low set top gives individuality. At the back of the body there is a very strong and rigid spare tire carrier of the internal type that supports the demountable rim without anything coming in contact with the tire itself. This carrier is so disposed as not to interfere with the gasoline filler cap of the round tank which is slung from the rear of the frame, a Stewart vacuum tank being used to transfer fuel to the carburetor.—Marion Motor Car Co., Indianapolis.

MARMON

There is not a detail of the new Marmon that is not new. The engine, which is a six, $3\frac{3}{4} \times 5\frac{1}{4}$, has aluminum cylinders and pistons, overhead valves, and a detachable head. It combines efficiency and quietness with complete freedom from vibration to a very remarkable degree. In a brief review it is difficult to pick out specific details, but mention must be made of the oil throttle which is linked to the gas control and varies the oil pressure in accordance with the work the engine is doing at the moment. There is not a single detail on it that is not instantly accessible, the electrical equipment being particularly easy of access. The frame is a novel type, made from very thin steel and with the steel running boards used for their strength as part of the frame section. The rear end of the frame is connected to the axle by a pair of superimposed transverse springs which are set back to back with a device in mounting which eliminates roll and also varies the period of the spring according to the nature of the shock encountered. The rear axle is built up from cold drawn steel tubes. The gearset is located on the front end of the torque tube and is so mounted on a ball joint that perfect freedom of motion is given the axle and yet the gear control lever is unaffected. The body is built up in sections of aluminum, the

Six Principal Types of Springs Used on 1916 Cars



The various types of springs used on the 1916 cars divide themselves into six general classes, as shown above. Last year saw the practical introduction of the cantilever type by a considerable number of manufacturers and this year the number is still greater.

The types of spring ends may be divided into fourteen classes, and these are styled, in Society of Automobile Engineers' nomenclature: 1—Oval; 2—Egg shape and bevel; 3—Round point; 4—Round end and bevel; 5—Blunt end with bevel; 6—Short French point; 7—French point; 8—Blunt French point; 9—Round end slot and bead; 10—Blunt end slot and bead; 11—R'bbled; 12—Square point, tapered; 13—Square point; 14—Diamond point.

frame being used as the base. There are no body sills. The upholstery of the body is detachable by detail so that a complete new set of cushions and seat backs can be put in in an hour. It would be possible to have a summer set of leather cushions and a winter set of cloth, for example, and anyone could make the change. The top is low set, and appears as an integral part of the design when raised, its lines harmonizing with those of the body.—Nordyke & Marmon Co., Indianapolis.

MAXWELL

In striving for better operation, the clutch has been enclosed so as to permit it to run in oil. Though a cone, it is faced with an asbestos fabric that is not harmed by the lubricant, and this gives it a very soft action. Better engine lubrication is also accomplished by distributing the oil to each of the connecting rod splash troughs instead of the old way of introducing the oil at the front end and letting it work its way back to the other troughs. This gives more uniform oiling. To make it easy to put in the oil, the breather has been conveniently placed on the left. Other evidences of the improvement of the car are the use of linoleum-covered running boards instead of the former corrugated metal type; the fitting of demountable rims for the 30 x 3½ in. tires, and the enlargement of the body. Three inches is added to the seat width and there is more leg room. The Maxwell 3½ x 4½-in. motor is of the type in which cylinders and upper part of crankcase are integral, with the head detachable. Thermosiphon cooling is efficiently used, and starting and lighting are by the Simms-Huff system. A motor-generator is carried on the motor's left, with the generator drive by a belt under constant spring tension, and starter drive through the flywheel. Twenty-five horsepower is credited to the engine, which drives a three-quarter floating axle with a ratio of 3.6 to 1. The car has three-quarter rear springs, three speeds and left drive.—Maxwell Motor Co., Detroit.

MECCA

This is a new car with four-cylinder unit power plant. Its features are a Gearless differential and a type of single plate disk clutch which has toggle lever operation and is intended to run in oil. On the rear axle are double internal brakes of the usual pattern.—Times Square Automobile Co., New York.

MERCER

In general the design of the Mercer chassis which made its first appearance at the 1915 shows has not been changed. The motor follows the principles of racing engine construction, save that it has L-head cylinders. It is capable of high speed and gives a high mean effective pressure at low speeds, so that the car has plenty of ability even on the somewhat high, direct fourth gear. On the back of the gearbox there is a large internal brake, this being the service brake, and very powerful indeed. Hotchkiss drive is used, with the semi-elliptic springs very long and flat. There are four body styles; touring cars with six- and four-passenger capacity and two roadsters of two-passenger size, one of the latter being classed as a raceabout, specially geared, without starter and capable of extremely high speeds.—Mercer Automobile Co., Trenton, N. J.

METZ

The motor has been increased in size to 3¾ x 4 in. and a five-passenger touring car is now supplied as well as the roadster.

Also the original acetylene lamp equipment has been replaced by a Gray & Davis lighting and starting, which is stock equipment. Ignition is still by high-tension magneto, however. From the frictional transmission, with its seven forward speeds, the drive passes to the rear axle through a single chain. The tires, being 32 x 3½ in., are large for the size and weight of the car. Either wire or wood wheels are supplied, according to the choice of the customer.—Metz Co., Waltham, Mass.

MITCHELL

The 1916 Mitchell chassis both for the eight and the six is very much the same as last year, but the two engines are new. The Mitchell chassis is assembled on the two-unit system; the motor has a three-point attachment to the frame but does not carry the gearset, this being a portion of the transmission unit. It is not a rear axle gearset, however, as the gearbox is located at the front end of the torque tube which encloses the driveshaft, everything centering on the single universal, which is situated between the clutch and the gearset. Cantilever rear springs are now used for both cars and the wheelbase is the same, 125 in. An interesting point about these cars is that both eight and six sell for the same price: the purchaser of a 1916 Mitchell can choose his car first and then make up his mind which type of motor he prefers to have. There is a wide choice of body styles and a full equipment, while larger tires are inclusive in the price of the limousine. In design, the eight-cylinder motor is distinctive and uses the intake pipe as the water outlet also, the manifold being of duplex form. Cylinders are L-head blocks bolted to an aluminum crankcase, and the connecting rods are of the forked pattern. Very large valves and quick lift cams give the motor a high speed ability. The crankshaft pinion meshes directly with the camshaft gear, and above the latter is another pinion that drives the generator and the fan. These gears are fed with oil direct from the pump, which assists to keep them quiet.—Mitchell-Lewis Motor Co., Racine, Wis.

MONROE

This is a small four-cylinder car selling for a low price. The principal change is the addition of starting and lighting equipment. It is a true light car with a unit power plant and a floating rear axle. The generator and starting motor are of Auto-Lite make and the carburetor a Zenith. There are two sorts of body, a roadster and a speedster, both listing for the same price. The roadster is a designed streamline form with top, side curtains and windshield complete.—Monroe Motor Co., Flint, Mich.

MONITOR

A distinctive design for both six- and four-cylinder chassis combined with low prices is the Monitor program. The engines have valves arranged F fashion, half in the head and half in the lower position, and the camshafts are driven by silent chains. Both are unit power plants with disk clutches running in oil. To both cars five-passenger touring bodies are fitted, and on the four a roadster is supplied as an alternative at the same price.—Cummins Auto Sales Co., Columbus, O.

MOLINE KNIGHT

The larger four has not been altered this season, but the small four has an extra ¼ in. of bore, being now 3¾ x 5 in. Apart from the Knight motor the Moline chassis is very interesting, as it uses the Brush special frame construction and rear spring sus-

pension. The frame is so made that the running boards, which are steel, form a vital part of the side members, their strength being used fully. The rear end of the frame is raised in such a way as to eliminate a large part of the body, the rear seat setting directly on the side rails. The rear springs are transverse and there are two of them back to back and one above the other. They are of slightly different length and so of different period. The upper has a shackle attachment to the frame at one end and a pin at the other, and the lower has corresponding attachment to the axle. The effect of these two springs is to provide a very easy suspension, and yet roll is eliminated by the difference in period. One spring damps out the other, so to speak, when a severe shock is encountered. Touring and roadster bodies are fitted to the smaller chassis and a wide range of all types are made for the larger.—Moline Automobile Co., East Moline, Ill.

MOON

Both models are new. The chassis, which follow convention in general, are strongly similar, the main difference being in the size of the motors, which are 3¾ x 4½ in. and 3½ x 5½ in., respectively. The larger is very much like the 1915 model, the smaller having the new Continental light six engine, with a Delco starting, lighting and ignition system. Hotchkiss drive is used for both chassis, a difference being that the larger has three-quarter and the smaller semi-elliptic springs. Full-floating axles are fitted. The new bodies are full streamline form and the folding seats on the seven-passenger models are arranged to disappear completely when out of use.—Moon Motor Car Co., St. Louis.

MORSE

A big four-cylinder car of a conventional type of chassis for five- or seven-passenger touring body or a roadster. It is one of the few cars with an engine having singly cast cylinders and amidships gearbox location. Having a 129-in. wheelbase it is quite a large car and is of substantial construction. Gray & Davis two-unit electrical equipment is employed with Elsemann magneto for ignition. The accessory equipment is of the highest class and most extensive.—Morse Motor Car Co., Brookline, Mass.

NATIONAL

Making two sixes and a twelve, the latter is intermediate in size, measuring by engine displacement. The overall size of the twelve and the smaller six is the same, the big six having an extra 6 in. of wheelbase. The twelve is the only V motor with the valves arranged outside, the L-head cylinders being the reverse way round to the conventional, this making for tappet accessibility and allowing the V to be used for mounting accessories. The special Splitdorf magneto is driven by silent chain and occupies the front end of the V, while the rear end is taken up by the starting motor. Only the generator and pump are outside the V, these being set low down on the right side where they are accessible and yet do not interfere with the valves. There are two camshafts, these being gear driven, and the magneto and fan are driven by silent chain from one of the camshafts, this making only a short drive. Lubrication is very well worked out, almost every part having a supply direct from the pump. Pistons are aluminum alloy and the speed capacity of the motor is 3,000 r. p. m. The carburetor is set in the V, using an intake manifold of the type usually associated with

V motors, and internal passages then lead the gas across the cylinders to the valves. The small six and twelve have unit power plants, but the big six has the gearbox located amidships, and all have cone clutches. Large and extra powerful brakes are a feature of all three cars.—National Motor Vehicle Co., Indianapolis, Ind.

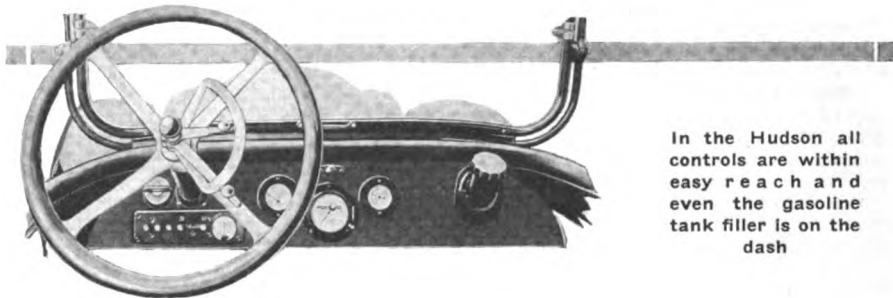
OAKLAND

Oakland is represented this year by three models, a four, a six and an eight. The four is practically an improved continuation of the previous four, the eight and the six being entirely new. The six is a machine of the lighter type, built to sell at a low price. Whereas the four and the eight preserve the V-shaped German silver radiator and are built with very much the same shape of bodies that the cars of a year ago had, the six is an extremely light chassis with flat radiator. It is the first Oakland to use an overhead valve engine. The eight-cylinder motor is of the type in which each block of cylinders is cast integrally with half the crankcase, the latter being split vertically, with the left half carrying the crankshaft. It is a standard Northway design, the six and the four also being built by that motor maker. The six-cylinder engine has dimensions of $2\frac{13}{16} \times 4\frac{1}{4}$ in., and the valves are assembled on the head, which is detachable. The upper part of the crankcase is in one with the cylinders, this making a compact and substantial arrangement. To illustrate an assembly feature that is also conducive to simplicity of design, the combination of the water pump impeller, fan and fan bearings is conspicuous. The fan and water pump are really one unit, and the pump case is part in the casting of the cylinder block and part in the mounting of the fan. Thus the belt that drives the fan also works the pump, doing away with a special pump shaft and its driving mechanism.—Oakland Motor Co., Pontiac, Mich.

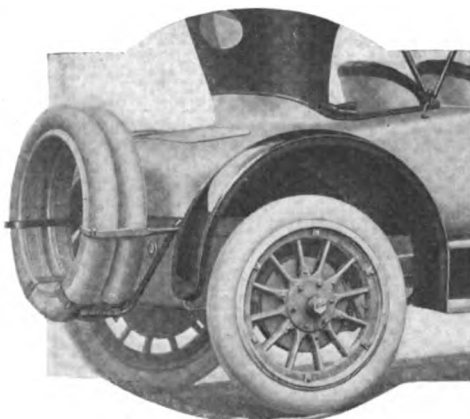
OLDSMOBILE

Chassis standardization has been followed wherever possible in the 1916 Oldsmobiles, with the result that the four and the eight are very similar in construction throughout, the eight, however, being stronger wherever necessary to be consistent with the greater power of the multi-cylinder engine. The former six-cylinder model has been dropped entirely. In the four the characteristic overhead valve engine is still used, this being of the type in which the push rods are entirely enclosed—an unusual feature where they run up the side of the cylinders. The eight is an L-head $2\frac{1}{2} \times 4\frac{1}{4}$, and like the four, the cylinder heads are detachable, with the crankcase split vertically into two sections, with one part integral with each block of cylinders. The present Oldsmobile chassis is 8 in. longer than that used on the four of 1915, it now being 120 in. in length. The enclosure of the drive shaft has also been abandoned and, in keeping with the latest developments in chassis engineering, the Hotchkiss type of drive has been adopted. Naturally this makes a much lighter chassis when compared with former Oldsmobile practice, and to further lighten it, one cross-member has been dispensed with without impairing the strength in any way. Due to the use of a pressed steel housing, the present axle is 48 lbs. lighted than that used last year, the old form of case being malleable iron. Thus, although the cars are more powerful than the previous types, they are much lighter, and consequently have a liveliness that is appreciated. The rear springs have been made long and flat, they being almost horizontal when the car is in normal position. When deflected they bow to the other side of the horizontal, making for

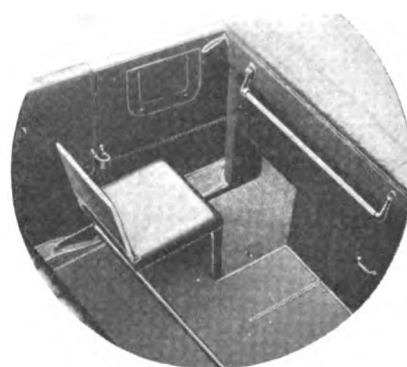
Body Conveniences That Help to Sell Cars



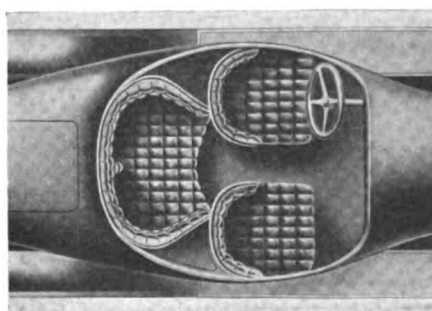
In the Hudson all controls are within easy reach and even the gasoline tank filler is on the dash



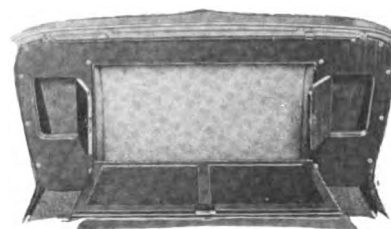
Storage space and more of it has been the cry of late. In the National, plenty is provided under the rear deck



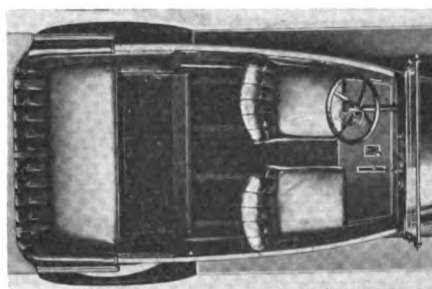
The auxiliary seats, which at one time were always in the way when not in use, now disappear



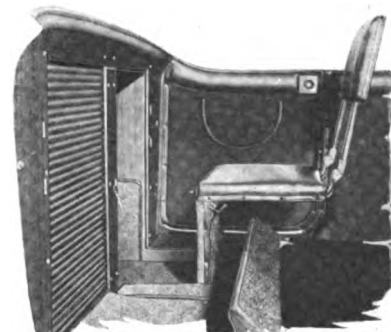
The chummy four-passenger roadster is a distinctly new creation this year; this is an Apperson body



In the Mercer sporting model, large cupboards are housed in the space at the back of the rear cowl



So that there may be no trouble getting from the driver's compartment to the tonneau, the divided front seat has become very popular. This shows the Jeffery four arrangement



Here's a clever way of putting auxiliary seats out of the way. Mercer folds them into the forward cowl and there is a sliding door to hide them

more even action on the leaves.—Olds Motor Works, Lansing, Mich.

OVERLAND

The introduction of a smaller four late in the fall has increased the Overland models to three, the others being the large four and the six. All Overlands have the same characteristic appearance, and wherever possible they conform to one standard, although the difference in size of the cars makes necessary differences in the size and construction of parts. The block casting of the cylinders of the large four car has not altered in any way the general design of the engine, simply changing the manifolding somewhat and introducing the added feature of a detachable head. In all the models the gearset is still one with the rear axle, although in the new four the design is entirely new to Overland practice. All three are equipped with magneto ignition and have Auto-Lite starting and lighting. It is in the new four, however, that most of the departures from former Overland practice are to be found. One feature that will illustrate this is the casting of the cylinders and crankcase in one piece, and the abolition of external manifolds by coring passages within the casting leading to the valves. The cylinder head is detachable, and a more or less complicated part is done away with by the substitution of rockers between the valve stems and cams in place of the conventional tappets. This makes a simple valve adjustment, at the same time eliminating any side thrust, and it also makes a quick assembly construction. Compactness is also evident in the gearset, and to aid production and at the same time promote rigidity and consequently eliminate gear noise, the three countershaft gears are forged in one piece, it having a hollow center so as to operate on two Hyatt roller bearings, the shaft carrying it being fixed in the gearbox. In the axle design, both front and rear, there are features heretofore unknown to Overland cars. The front axle is of the inverted Lemoine type, the wheel spindles being supported above the vertical spindle by a single arm instead of the more conventional yoke mounting of the spindle. The rear axle is provided with a pressed steel housing, with external strengthening ribs. Springs are cantilevers in the rear of the new four, also a feature that is new to cars of this make.—Willys-Overland Co., Toledo, O.

OWEN

Little difference is noted in the 1916 car which carries a six-cylinder $3\frac{1}{2} \times 5\frac{1}{4}$ Buda motor. The feature of the car is, of course, the magnetic transmission which takes the place of clutch, gearset, starting motor and lighting generator. The principle of the transmission is best explained in a few words by saying that there is a magnetic field created and rotated by the engine. This rotating field drags an armature around and so drives the propeller shaft. When running on "high gear" there is a small amount of slip, just sufficing to maintain the magnetic grip, but when the controller is moved toward a lower "gear" the slip increases and the electric current generated thereby is used in a second armature and a stationary set of field magnets to help drive the car. Transition from one step to another is by gentle gradation and the effect is that of providing an infinite number of speeds. The wheelbase is 136 and tires are 35×5 . Many styles of bodies are offered.—R. M. Owen & Co., New York.

PACKARD

As the first twelve-cylinder automobile ever put on the market, the Packard will be one

of the newest things in the show and ranks as one of the most important engineering accomplishments of the year. It is the first Packard car with a unit power plant. The engine teems with novelty, for besides being a twin-six it has a chain front end with a particularly ingenious adjustment, one of the most elaborate lubrication systems ever devised, and a Lanchester vibration damper which eliminates the last trace of quiver from the motor at any speed. Every portion of the motor where there is motion is lubricated from the pump, even the spindle of the little air pump which supplies air for the fuel feed is lubricated positively. A large crankshaft, large valves, and light aluminum pistons give this motor a very wide range of speed, so the car is one of the speediest on the market. The car can be started from rest on the starter, with high gear engaged and will pick up without hesitation once the motor is warm. Despite a substantial drop in price the quality of the chassis detail, of the body and the equipment has been kept well up to Packard standard, and even improved upon in some respects. A very wide range of bodies is available and the body fittings are most luxurious. The left steering wheel and extreme left hand gear shift and emergency brake levers, now used by Packard for some years, are retained for the twin-six. Another leading feature is the centralized control upon the steering column, everything being brought to the one spot. One switch controls the lights, and it is the work of an instant to change over from full headlight power to the smaller lamps which are made up integral with the large ones but with separate reflectors.—Packard Motor Car Co., Detroit.

PAIGE

The newest Paige is the light 3×5 six announced early this year. The engine is a neat block with a detachable head and two-unit Gray & Davis electrical equipment. The carburetor bolts directly against the cylinders without any manifold, the generator and water pump being driven in tandem on the opposite side. A high mounting is used for the starting motor, which locates alongside the carburetor on the left side, and oil is circulated by a vane pump which is integral with the crankshaft, being situated at the extreme front end. Between the engine and the gearset of the unit power plant is a multiple disk clutch which runs in oil. The rear axle is provided with a torsion tube, enclosing the propeller shaft, and this tube is used both to resist the torque and to transmit the drive. The rear springs are cantilevers. Only the five-passenger touring body is supplied on this chassis. The larger six is similar to the small one, differing mainly in the motor. A plunger oil pump is used instead of the vane type. The wheelbase is 11 in. longer and the tires 34×4 in. Like the smaller car the large chassis is supplied with only one body, this being a seven-passenger touring type.—Paige-Detroit Motor Car Co., Detroit.

PARTIN-PALMER

Two fours and an eight make the Partin-Palmer line for 1916, all three cars being very inexpensive. The eight is supplied with a six-passenger body, the larger four with a five-passenger and the small four with a roadster. The small four is not new, but both the others are recent additions. They have unit power plant construction and thermo-syphon cooling, while the rear axles are fitted with double internal brakes. The eight is geared high, having a gear ratio of 3.5 to 1 with 33×4 in. tires.—Commonwealth Motors Co., Chicago.

PATHFINDER

Two distinct chassis, one with an overhead valve twelve and the other with a large six-cylinder motor, forms the Pathfinder output for next year. Both are new. The latter has a Weidely motor with valves in the head, the single camshaft being in the usual position in the V, operating the valves by push rods and rockers. The cylinder heads are detachable, and the valves seat direct therein. The motor has a remarkably neat aspect, with the valves totally enclosed by cover plates and other covers over the push rods. For the six a large Continental power plant is used, and the chassis differ in other respects also, the twelve having three-quarter rear springs and the six being fitted with cantilevers. Touring bodies and roadsters are made, including a clover leaf three-passenger body which makes an ideal roadster equipment for the twelve.—Pathfinder Co., Indianapolis.

PEERLESS

The recently reorganized Peerless company will make but one passenger car for 1916, this being an eight, which is to be constructed throughout at the Cleveland plant. There will be three body styles, a seven-passenger touring car, a limousine with the same seating capacity and a roadster for three. Being $3\frac{1}{4} \times 5$ in., the motor should have plenty of power. Lubrication is full pressure, with no splash, and dual ignition is provided with an automatic spark advance having a hand control superimposed. The power plant is a unit with the multiple dry disk clutch and three-speed gearset, and the rear axle is a Timken semi-floating pattern. One point in the design which is less common today than some years ago is the use of a platform spring at the rear, and it is also noteworthy that the drive is taken through the springs, there being no torque or radius rods. Lighting and starting is performed by Gray & Davis units and a special design of carburetor is fitted.—Peerless Motor Car Co., Cleveland.

PATERSON

The six with Continental high-speed motor will be continued. It is a conventional type of chassis with Warner gearset in unit with the motor and a Weston-Mott rear axle. In designing the five- and seven-passenger bodies the Paterson Co. has provided extra width on all seats. A detail is the method for folding the extra seats into the back of the front seat, another the utilization of the left front door as a tool kit, all the more important spanners, etc. being neatly arranged in holders just beneath the leather flap on the door.—W. A. Paterson Co., Flint, Mich.

PIERCE-ARROW

The 38, 48 and 66 six-cylinder cars will be continued. In detail there have been some changes. The tops of the cylinder castings have been rounded off in a neat way, making the motor look pounds lighter. The cone clutch is interconnected with the gear-shift lever so that gears can be moved only when the clutch is disengaged and all models have four speeds with direct on high gear. Drive is taken by the springs with no torsion tube. A wide range of bodies is available for the three chassis, these all being made on the Pierce-Arrow principle of cast aluminum units. With these bodies the development of a rattle is practically impossible and the cast aluminum provides an ideal surface. The woodwork is just sufficient to support the upholstery and is attached to the aluminum panels.—Pierce-Arrow Motor Car Co., Buffalo, N. Y.

PILOT

The two models with T-head motors are continued and a light six with 3 x 5 L-head motor has been added. The new car has a unit power plant with dry disk clutch. It has not the cantilever springs of the larger chassis, but uses semi-elliptic springs. On the light six both four- and five-passenger touring bodies are obtainable, and the larger chassis have equipment for six or seven passengers if desired.—Pilot Motor Car Co., Richmond, Ind.

PREMIER

One chassis with a wide choice of bodies, six in all, is offered. The chassis has a 4 x 5½ motor, with cylinders cast in two blocks, a multiple disk clutch in unit with motor and gearset and a Timken full-floating rear axle. Delco or Remy electrical equipment is fitted and the tires are 36 x 4½ in. The bodies include the conventional types, such as seven-passenger touring and roadster patterns. There is also a speedster, a clover leaf three-seater and a coupelet, while a special four-passenger called the "yacht" body is supplied also.—Premier Motor Mfg. Co., Indianapolis.

PULLMAN

The Pullman six is not much changed, but the four is a new model with high-speed motor, disk clutch running in oil and cantilever rear springs. It is to be supplied with touring five-passenger body, with a coupe three-seated equipment or with either of two roadsters, these being for three and for two passengers. A distinctive feature is the fitting of non-skid tires on all four wheels, the size being 31 x 4. Thermo-syphon cooling is employed and combined splash-pressure lubrication.—Pullman Motor Car Co., York, Pa.

REO

The four- and the six-cylinder have not been altered much for 1916, but have various detail refinements, notably a change in the starter drive which is simplified considerably. The new six body is a molded streamline, combining the center cowl effect with the convenience of divided front seats. The top, when folded, lies perfectly horizontal and so continues the lines of the body, and the folding seats are large, with strong and rigid supports when in use. The starting motor on Reo cars is located in a unique position, since it is on the front end of the main shaft of the gearbox, amidships. Last year the motor stood crosswise and a rather elaborate worm gear arrangement was used for the drive. This has been simplified by turning the motor round, and substituting a chain for the worm gear. It is lighter and equally effective. The intake valves are in cages screwed into the head of the cylinder, and operated by push rods and rockers, while the exhaust valves lie beneath as in an L-head motor. This motor is specially interesting because of the successful way in which the overhead valve mechanism has been made quiet without inclosing the rockers. Firstly the tappets have mushroomed heads, and the washers at the foot of the valves and push rods are also provided with a large foot piece. Between the tappets and valve there is then interposed a cushion of soft material large enough in diameter to be very durable. Another point is the use of oil-absorbing felt to retain lubricant for the supply of the rocker fulcrums. For oil supply to the principal parts of the engine there is a plunger pump which has the unique feature of being adjustable for output without trouble. On the six a peculiar cantilever rear spring is used,

this layout having the front ends of the springs close against the frame while the rear ends on the axle are wider apart. This spreading of the springs is said to eradicate roll while leaving sufficient softness to give exceptionally good riding.—Reo Motor Car Co., Lansing, Mich.

REPUBLIC

Almost unchanged in design the Republic 1916 series retains the T-head motor with pair cast cylinders. It has a 133-in. wheelbase. Four speeds are provided with direct on third. A departure from ordinary practice is that the service brakes are internal on the rear wheel drums, and the emergency brakes external.—Republic Motor Car Co., Hamilton, O.

REGAL

The big four Regal is a slightly altered continuation of the 1915 car, but the small four and eight are new. The eight has a unique camshaft arrangement, as there is but one cam for each opposite valve pair, yet no rockers are employed. This is done by raising the camshaft till the angle between the valves is 135 deg. Besides being simple this makes very greatly for tappet accessibility, while it is also of benefit in reducing the combustion head volume. The large four and the eight both have rear axle transmissions, but the little four is a unit power plant construction. All three cars have cantilever rear springs, and each has a Dyneto single unit lighting and starting equipment, this being accessibly disposed on the crankcase side.—Regal Motor Car Co., Detroit.

ROSS

There are now two models of the Ross eight, one 3 x 4½ in., the other 3¼ x 5 in. Both have chain front ends and the smaller thermo-syphon cooling, the larger engine being provided with a centrifugal pump. Full pressure lubrication is used for both models. Touring bodies of five- and seven-passenger capacity are fitted. The two chassis are generally similar, but the larger has three-quarter rear springs as compared with semi-elliptic on the smaller. A Detroit Starter Co. electrical equipment has been fitted in place of a special design used previously. Another feature of the smaller car is a multiple disk clutch running in oil.—Ross Automobile Co., Detroit.

SAXON

The new series Saxons cost just as much as they did before but they have a number of improvements. The little roadster is now fitted with a three-speed gearset instead of two speeds, and there is a change in the front of the cowl to bring the body up flush with the windshield and dispense with the former cloth filler skirt. Body sides of the six, which enters its second year with very little mechanical change, are somewhat higher, this being principally due to the addition of a strip of molding around the top edge. A roadster type has also been fitted to the six chassis, and it is a graceful model, with well-shaped rear deck. In the six the chief mechanical change is the replacement of the single-unit starting and lighting system by a two-unit type, it still being made by the Detroit Starter Co. Saxon axle equipment, now made by Timken, has spiral bevel gears. The six-cylinder motor is a block type with detachable head and is quite conventional throughout; the four-cylinder engine is somewhat similar in design to the six. On the six a feature is the adjustment for the chain drive of the gener-

ator, which is hung off the left rear supporting arm of the engine. A plate on the top of the generator fits into a trunnion pin attached to the supporting arm, and the generator can be rocked closer to, or away from, the engine to give the required adjustment of the sprocket centers. In the roadster a starter and lighting unit is supplied for \$50 extra. The standard lighting has been changed by removing the acetylene lights from the sides and placing them in front, and then adding oil side lamps. Another four refinement is the fitting of adjustable clutch and brake pedals, and added braking power has been provided by increasing the drum width from 1½ to 2 in., the diameter being 8 in. A Saxon characteristic is the suspension of both four and six chassis on cantilevers, front and rear.—Saxon Motor Co., Detroit.

SINGER

The Singer is continued with but few changes. It has one of the largest unit powerplants made, the motor being 4 x 5½ in. Four speeds with direct on fourth are provided, and the big engine is tuned up to run up to 2,000 r. p. m., or over, and it is claimed to develop in excess of 100 horsepower. It is a large, fairly low-priced car, and seven different bodies are offered, a runabout, two touring models and two enclosed.—Singer Motor Co., New York.

SIMPLEX

The four-cylinder Simplex and the largest six are listed for next year without change, but there has been added a smaller six, though this is only small by comparison, having a wheelbase of 143¼ in. and a motor with 459 cu. in. displacement. A four-speed gearset with direct on fourth is common to all three. All Simplex chassis are supplied for custom built bodies only. The chassis is remarkable for its workmanship and for the quality of steel used; weight is a secondary consideration to strength, although the fine materials allow light parts to be made for many portions. The new six is a higher speed motor than the older cars, being scheduled to produce its maximum power at 2,000 r. p. m.—Simplex Automobile Co., New Brunswick, N. J.

STANDARD

Of these two cars the six is the more expensive and is a little longer in wheelbase, though much the same body equipment is fitted. Both are listed with seven-passenger touring and three-passenger roadster bodies. On the six a limousine is included, but not upon the eight. Both have unit power plants, but the six has three-quarter rear springs and a torsion tube, while the eight has semi-elliptics and Hotchkiss drive, both using dry disk clutches.—Standard Steel Car Co., Pittsburgh, Pa.

STEARNS

The eight is the first of its kind with a Knight motor. The small four and the six are continued without change except that the arrangement of the electric units on the former has been altered. The bore and stroke of the eight are 3¼ x 5 in. The light four made its appearance just a year ago, and has not been altered except by a rearrangement of the electric units, which makes for convenience. Likewise the six is to all intents the same car as last year's model. Both, of course, have Knight motors. The eight is the first Knight-engined chassis to have a V motor. There are two shafts for driving the eccentrics which operate the sleeves, as to accommodate sixteen throws on one shaft would be almost impossible.

These two shafts are close together at the foot of the V and there is a single silent chain which drives only one of the eccentric shafts, and the second is connected to the first by a pair of spur gears inclosed in a special chamber and are used for the oil pump. Ignition is supplied by a Remy distributor, and the cooling is by thermo-syphon circulation; the Knight motor is always easy to cool, and a V Knight especially so. The lubrication is all forced without any splash. The gearset is in unit with the motor, enclosing a dry disk clutch, and the service brake is a powerful contracting pattern located on the gearbox. An open type driveshaft is fitted and there is a torque arm, though drive passes through the cantilever rear springs. The motor is high speed and is geared low. Standard body equipment consists of a seven-passenger touring type, of graceful outline, a modified molded form.—F. B. Stearns Co., Cleveland.

STERLING

This is one of the most recently announced new cars and will be made in roadster form to sell at a very moderate price. The motor is a Sterling $2\frac{1}{2} \times 4$ in., with overhead valves and splash-pressure lubrication. There is a cone clutch and three-speed gearset in unit with the motor, and the axle is a floating type supported on cantilever springs. Two bodies, a five-passenger and a roadster, are provided.—Sterling Automobile Co., New York.

STEWART

The Stewart is the product of a firm which specialized on light commercial vehicles up to the present year, when it commenced to make a passenger car. It is an assembled car, using Continental motor and Timken axles. The radiator is located against the dashboard and the hood of the sloping pattern like the original Renault or the Franklin.—Stewart Motor Corp., Buffalo, N. Y.

STUDEBAKER

Bodies are practically alike on the four and the six, and most of the difference in wheelbase is taken up by the greater length of the six-cylinder engine. The wheelbases are 112 and 122 in., respectively. Aside from this necessary wheelbase difference the two chassis are practically alike except for the rear axle gear ratio and larger rear springs on the six. One of the main changes as compared with the previous Studebakers is the redesigning of the engine for greater accessibility and quietness along with more power. Practically the same in general design, the four and the six engines both have their bore increased from $3\frac{1}{2}$ to $3\frac{3}{4}$ in., with the stroke remaining at 5 in. The cross-shaft at the front which was a feature of the 1915 engine for driving pump and ignition distributor, has been done away with, and the pump is now driven from the camshaft gear and the distributor is vertical and operated through bevel gear connection with the front of the camshaft. The other unit affected by the change is the generator, which now sets on end with its armature shaft vertical and has spiral gear drive from the front gears. The starter motor is located on the right front of the engine, driving the crankshaft through roller chain. The former bronze collar has been replaced by a ball-bearing throwout, this promoting silence and lessening wear. Whipping of the drive shaft is guarded against by enlarging the diameter from $1\frac{1}{4}$ to $1\frac{5}{16}$ in., and while no changes have been made in the rear axle gearset, the axle housing is increased in size. The entire spring suspension has been gone over, and on all cars three-quarter elliptic rear springs are used. Lower

hanging is also accomplished by lowering the rear springs and dropping the front axle at the spring seats. The bodies have leather upholstery, the general finish and lines being better than in the previous year. The bonnet slopes to the cowl without a ridge between, and in the control the placing of the instruments is more convenient.—Studebaker Corp., Detroit.

SUN

This is a new light six with the popular 3×5 in. cylinder dimensions. It is an assembled chassis and has Remy electrical equipment, dry-plate clutch and Hotchkiss drive, while the rear axle has double expanding brakes in the wheel drums.—Sun Motor Car Co., Buffalo, N. Y.

STUTZ

Improvement in body design is the most striking change in the Stutz cars for 1916. The new bodies are fitted to a single chassis which is made in two lengths, 120 in. and 130 in. wheelbase. The "Bulldog Special" is a very low built touring car with seating accommodation for four. There is also a touring body for six passengers on similar lines. This body has no rear doors, passengers reaching the tonneau through the aisle between the front seats. In the "Bulldog Special" there is a tonneau cowl divided into two compartments, one fitted to take a lunch kit and the other for two Thermos bottles. The motor is the T-head type four, but it has been improved by the addition of a good deal of space to the crankcase, so that the latter now holds $2\frac{1}{2}$ gal. of oil and replenishment is only needed at long intervals. The operation of the accelerator pedal has been rendered easier by adding a heel cavity in the foot-board, and a hint of racing experience is seen in the adoption of racing type Hartford shock absorbers as standard equipment. Another racing feature now standard on Stutz cars is the Motometer, which will in future decorate every Stutz radiator cap. The Stutz company offers a wide choice of paint-work in a series of grays, reds and yellows. There are three colors of upholstery to choose from, red, green and black.—Stutz Motor Car Co., Indianapolis, Ind.

VELIE

The program for 1916 includes one continued chassis, the $3\frac{1}{2} \times 5\frac{1}{4}$ six, and one new car, a lighter six with motor $3\frac{3}{4} \times 4\frac{1}{2}$ in. This engine is a Continental high-speed motor. On both chassis the unit power plants are supplied with the same clutch, a three-plate pattern dry disk which is operated by exceptionally light pedal pressure. There is an easily accessible adjustment for spring pressure and there are two adjustments on the clutch pedal, one where it is keyed to the shaft and another on the pedal pad. A very wide frame is used so that the body can be supported on a base of its own width without overhang at the sides. The rear springs come beneath the frame instead of beside it, and pass beneath the axle; they are the only attachment between frame and axle, taking all torsional and driving stress. Special care has been taken with the electric wiring, all wires being in conduits and the Remy equipment is used. The body is described as a boat-shaped streamline.—Velie Motor Vehicle Co., Moline, Ill.

VIXEN

Narrow tread and friction drive feature this small car. The drive incorporates a friction set at the rear end of the chassis with a friction driving disk for each rear wheel, the connection between either disk

and its respective road wheel being by side chain. The motor is a small four-cylinder and the body has the two seats arranged tandem fashion.—Davis Mfg. Co., Milwaukee, Wis.

WHITE

A large and a small four are being made by the White company, with little difference between the present series and that of 1915. The chassis have block motors with intake and exhaust passages cored in the casting and combined pressure and splash lubrication fed by a plunger pump. A special lighting and starting apparatus is used and single Bosch magneto ignition. On both the large and small chassis the gearset is located amidships and has four speeds, but the smaller car has the direct drive on third while the larger has a direct high gear. A remarkably easy action single disk clutch is used. The White electric equipment stands almost alone by operating at 21 volts, this same potential being used for all the lamps. Body styles have been brought up-to-date and they include almost every conceivable type, touring, town car, roadster, landaulet and limousine. Long, three-quarter elliptic rear springs are used and these are relieved from all stresses save those arising from the weight of the car, as both radius and torque stays are fitted.—White Co., Cleveland.

WILLYS-KNIGHT

The Willys-Knight is the first car equipped with the Knight engine to be built in quantity. The Willys-Knight engine is a four-cylinder block construction with a cover plate going over the top of the individual cylinder heads proper. The cover plate forms the top of the water space, and it incorporates a water outlet to the radiators, the cooling being by thermo-syphon. This construction allows the water to circulate entirely over the heads, and is an advantage over the former method of casting the Knight cylinders separately with no intercommunication for the water. A two-part aluminum crankcase is used, and it has the feature of including a water passage from the radiator inlet pipe, carrying the water across from the right side to the left where it is introduced into the cylinder block by a connection at the bottom center of the cylinder casting. This is conducive to equal water distribution from a central point. There is nothing unusual in the working out of the details of the two sliding sleeves, and their actuation in the regular way by connecting rods operated by an eccentric shaft. As in other Knight types, the oil supply regulation is interconnected with the throttle so that the amount supplied is in relation to the throttle opening. Simplicity has been aimed for in the system of lubrication by forcing it to the main bearings, eccentric shaft bearings and driving chains at the front. The crank webs are drilled to send it to the rod bearings, from which it is thrown to the other surfaces. In its new form, the car adheres strictly to standard Overland construction in the chassis; the axle design, the incorporation of the gearset as a part of the rear unit, and the layout of the springs and frame members are well known in the design of Overlands. There are two open and two closed bodies, all fitted to the one wheelbase of 114 in.—Willys-Overland Co., Toledo, O.

WOODS MOBILETTE

This is a small, light car with low-built, two-passenger body. It has a 36-in. tread and 104-in. wheelbase, but the passengers are accommodated side by side by means of staggering the seats a little.—Woods Mobilette Co., Chicago.

The KALEIDOSCOPE of 1916 ACCESSORIES.

THE chance for constructive salesmanship in disposing of accessories is greater this year than ever before.

Similarly, the NEED for constructive salesmanship was never greater.

In selling accessories in the immediate future there are four strong points to be remembered and each bears a message of better business.

1. The purchaser of a car gets his machine already equipped with the more important accessories. Hence he has some leeway for the purchase of other accessories that may strike his fancy or fill his need. The hitting of that target is the dealer's business.

2. The number of desirable, necessary accessories is increasing.

3. The practical value of each is growing.

4. The line drawn around the accessories that constitute standard equipment on all cars is being crowded by other accessories; some of which occasionally get into the charmed circle. Each season will see more of these articles established as regular equipment.

Supplying Real Needs

It is this last group of accessories that offers the dealer the greatest opportunity for the best kind of business. It is made up of things the car owner thinks of first—the things he NEEDS first, after he begins to use his car. This is the reason they are crowding the standard equipment group.

But it is the very utility—practical value—of these things that will, sooner or later, push them into the circle. Once there, they are of little value from the accessory dealer's point of view. Except in isolated cases, there is little sale for windshields, speedometers, horns—they are already on the car. A few years ago there was big business in such things, for then they were just outside the ring. But there are many more to take their places.

This means that the character of the best selling group is constantly changing. As one thing goes out of the field another must come into it. So the wide-awake dealer must keep his wits sharpened and his faculties on the alert to hold his methods abreast of existing conditions.

Wider Applicability

There is one particular point that is of inestimable value from a merchandising viewpoint, and it has developed so grad-



ually that it is doubtful if it is appreciated quite as it should be. That point is the feature of **APPLICABILITY**.

When a man buys a bumper all he has to do is to mention the name of his car to get one that will go on with a few twists of a monkey wrench. He does not have to drill holes, file fittings and fuss for half a day. Even if his car is some machine with mechanical idiosyncracies he will find that the makers have provided special fittings for it. The same is true of engine-driven tire pumps. There is not a car in existence that cannot be fitted with some kind of an engine-driven tire pump—without fussing or trouble.

This has not always been so. And it was no easy task to sell a man a bumper when the transaction was the introduction to an engineering soiree to be followed by a second reckoning. Selling a power pump used to be hard work, but it was often a lot easier than putting the pump where it could fulfil its destiny.

Conspicuous Simplicity

The dealer is immeasurably helped by the simplicity of operation of the apparatus he sells. The use of a vulcanizer does not necessitate an apprenticeship in a rubber plant. Tell the purchaser to clean the tire, stick in the gum, pour a little fuel into the vulcanizer, touch a match to it—and forget it until it cools off. And, as if this was not enough to make the proposition a good one, the tire manufacturers boost tremendously by urging that all little tire injuries be vulcanized at once.

If a man does not like gasoline for fuel he can have a vulcanizer that burns alcohol as well. If he does not like either, he can have one heated by electricity from his storage battery, from his house or garage current, or, if he has a

Ford, from the magneto current. If he prefers a steam vulcanizer, it is just as simple to use as any other kind. Anyone can use any of them. And even that does not quite end the list, for there are vulcanizers that utilize the heat of the exhaust. Truly, an excellent array of building material for constructive salesmanship!

Selling engine-driven tire pumps presents a positively fascinating proposition. No man who ever drove a car can fail to appreciate their advantages. The skeleton of the selling argument is simple and clear-cut, and there's no come-back. Flat tire—sizzling day—late already—ten miles to a garage—question: Fix it and get a backache pumping up or let it go and take a chance on spoiling a good shoe?—grumble, growl, bother, nuisance. Dealer's suggestion—neat little engine-driven pump—out of the way when not wanted—on the job in a second—tire inflated in two minutes actual time while you look at it—gauge tells you when to stop—get one that'll whistle at you if you don't want to watch it—Oh, yes; put it on for you in a little while with a monkey-wrench. Thank you!

Trouble Minimized

And to cap the climax, the tire people all help by insisting on the vital importance of keeping tires properly inflated.

For quick attachment there is the spark-plug type of pump, which is so elementally simple in this respect that the question of attachment doesn't enter the transaction at all, for all there is to do is to screw out a spark plug and screw the pump in its place. And if that's too much, why, give him one that he can screw into a valve port in place of the cap and forget.

Consider the clocks, how they tick. How many cars have clocks on their dashboards? Few indeed. How many car owners want clocks? Practically all of them. You can sell a man a clock for a dollar—and up. If it's too much trouble to wind a clock every day, you can sell one that will run 10 days and post a bulletin on its own face three days before it will need rewinding. Might not notice it? Very well; sell him an electrically winding clock that will wind up with the help of a single dry cell or the lighting current, and keep time like a chronometer. Weatherproof? Yes; tight as a nut. Also vibration- and thief-proof.

Shock absorbers and supplementary

springs are excellent selling accessories. Like bumpers, they are made in such infinite variety that there is no such thing for the prospect as escaping through inability to fit his car. Where a standard type will not do, special types for certain cars are made, and where supplementary springs attach to spring ends, various widths of springs and sizes of bolts are provided for. Helical, flat and coiled springs are utilized in a score of forms, each of which has its own peculiar advantages. But quick and easy application and greatly improved construction are conspicuous features of practically all the devices of the day, regardless of mechanical differences.

Selling an inexpensive heater to a

man who has just been driving in the cold offers the dealer a fine opportunity. The engine warms the car as well as driving it, but the added burden is in the form of a relief, for, at least in some cases, the extra outlet for the exhaust decreases the back pressure. It is not necessary to keep the heat turned on all the time; a little foot-operated valve regulates it to suit the weather. And while the attachment is not quite as easy as screwing in a new spark plug, it is, at the worst, only a matter of a short time and the use of a few common tools to obtain warmth in place of the shivers.

And these are but a few of the many accessories that are at the dealer's elbow—waiting to be pushed forward.

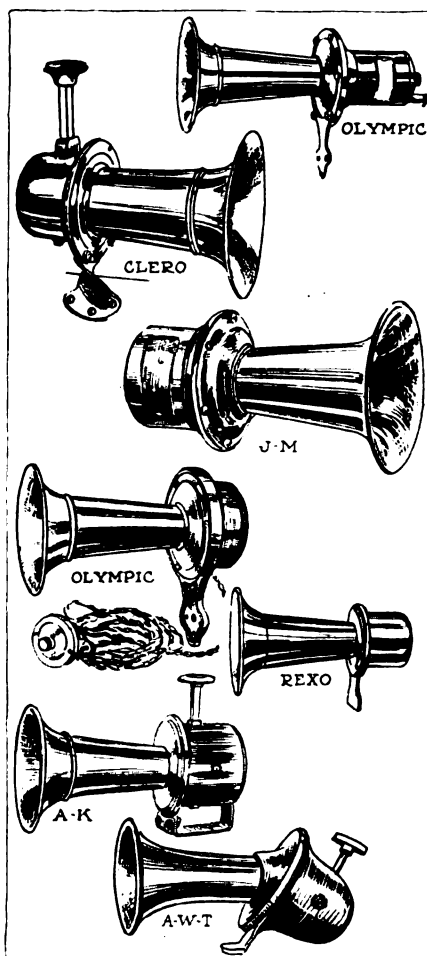
Electric Warning Signals

Klaxon—Lovell-McConnell Mfg. Co., Newark, N. J.—A new motor-driven horn styled U. H. Klaxet has been brought out for \$6. It resembles the Klaxonet in shape and in that the motor shaft is horizontal and carried in a housing directly back of the horn bell. This motor drives a cam with many teeth cut on it, which vibrates the diaphragm and thus produces the sound. It operates on 6 volts and is finished in black, which is the standard color for the coming year. The other models will be continued. These include the Klaxonet, \$15; Underhood Klaxonet, \$12; and Klaxon, \$20. In addition there are combination bulb and electric horns. The Klaxonets have horizontal motors and the Klaxons vertical motors, with the motor considerably below the horn bell. Prices include 10 ft. of double insulated wire and a push button. The electric horns are regularly supplied with 6-volt windings, but other voltages will be furnished up to 21 without extra charge.

Sparton — Sparks - Withington Co., Jackson, Mich.—Improvements consist of a means of adjusting the signals by merely turning a knurled nut at the rear; no special wrenches are required. The commutator is also more accessible. The electric horns are driven by a horizontally placed motor whose shaft is directly attached to a cam with many teeth, which operates the diaphragm. Two models are made, differing only in size, the smaller being made in two finishes, all black, \$6.50; and black and nickel or black and brass, \$7. A larger model sells for \$14, all black; and in black and nickel or black and brass, \$15.

Automobile Supply Mfg. Co., 220 Taaffe Place, Brooklyn, N. Y.—A Ford magneto horn operating through a wide

range of voltages of the Ford magneto is sold with bracket, cord and button for \$2.25. Newtone Superior, a motor operated horn with bracket, cord and connections, \$5. Larger model, type M, \$9; this may be had with bell or straight projectors at the same price. Any horn may be had in brass, nickel, black enamel or combination. Underhood type, with



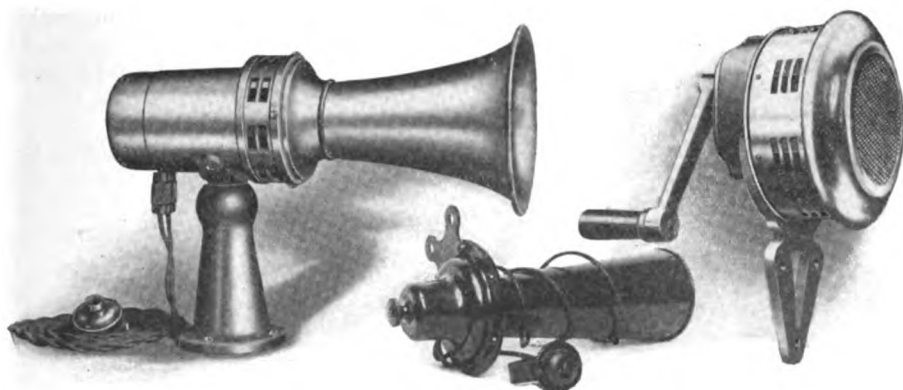
Electric and hand horns have completely ousted the bulb type

straight projector, \$5. The Apollo is a vibrator horn, complete with bracket, cord and button, \$2.75.

Stewart—Stewart-Warner Speedometer Corp., Chicago—This horn is a recent addition and is a motor-driven type for either direct or alternating current. Different models are made for 6, 12, 18 and 24 volts. The motor winding is protected by baking the fields and armature for a long period. The commutator is hard-drawn copper and the brushes are large. The front bearing is bronze and the rear one a hardened steel ball. A push button over an inch in diameter, and 10 ft. of double strand cord are furnished with each horn. The button may be operated with finger hand, arm or elbow and with a very slight pressure. Price, \$7.50.

Sampson—American Electric Co., Chicago.—Motor driven and vibrator electric horns are made. The complete line includes the big motor-driven horn, \$15; Junior, \$10; Vibrator, \$6.50; Victor Vibrator, \$4. Both horns follow standard construction. The motor-driven horn drives a cam which vibrates the diaphragm, while in the vibrator horn the pulsation of the diaphragm is caused by an electro-magnetic vibrator operating on the same principle as an electric bell. Horns are built for 6 volts and up, although for over 12 volts there is an extra charge.

Olympic — Electric Spark Appliance Co., Brooklyn, N. Y.—Two types electric horns, a vibrator and a motor-driven design, the latter being new for 1916. Both are in two styles, for outside mounting and under-the-hood attachment. The underhood models are finished only in black and the outside models may be had in black, black and nickel, or black and brass. Prices: \$7.50, motor-driven, outside model; \$5, motor-driven, under-hood type; \$5, vibrator outside model; and \$3, vibrator under-hood model. Dealers, 33⅓ per cent. Prices include wiring and fittings.



Inter-State electric siren.

Heinze electric.

Inter-State hand signal

Heco—Heinze Electric Co., Detroit.—This is an electrically operated horn. Designed to operate on Ford flywheel magneto current and to work on any voltage from 3 to 30, alternating current. With bracket, cord and connections and button, \$3.50.

Sterling—The Inter-State Machine Co., Rochester, N. Y.—This is a siren operated by an electric motor and is designed especially for fire apparatus and the like. Made in standard voltages from 6 to 18 and can be furnished for any voltage up to 110 D. C. \$25; dealers, \$20.

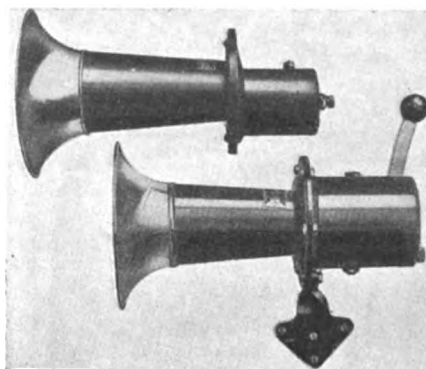
Hand Horns

Sterling—The Inter-State Machine Co., Rochester, N. Y.—This horn is of the siren type without projector and is operated by a crank. It is designed especially for fire apparatus and the like.

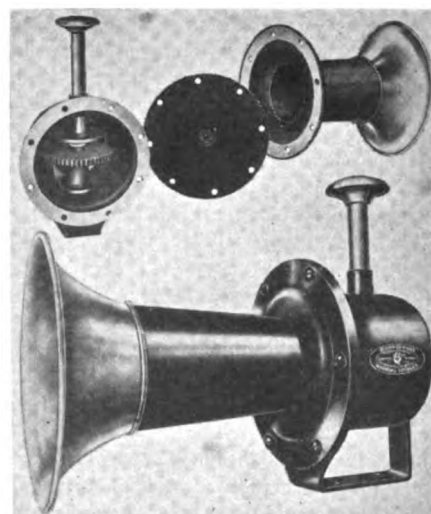
Stewart—Stewart-Warner Speedometer Corp., Chicago—One model: This horn is a long bell model actuated by depressing a vertical plunger. The plunger shaft has a rack on it which operates a train of gears to drive the cam which

vibrates the diaphragm. Oil is fed to gears and bearings automatically through an oil-soaked pad. Finished in black and nickel, or black and brass. Sold on 30 days free trial. Price, \$5.

Sparton — Sparks - Withington Co., Jackson, Mich.—There are two hand-operated signals, one for \$4 and another for \$7. The former is finished in black and nickel and the latter is all black. The operating mechanism consists of a notched wheel placed horizontally which acts on the diaphragm. The shaft of this wheel has spiral grooves cut in it and rotation is secured by moving a nut attached to the handle lever down over this shaft. There is an adjusting nut for changing the pitch at the rear, it being merely a screw which moves the lower



Sparton motor-driven and hand-operated signals



The new Grossman hand horn

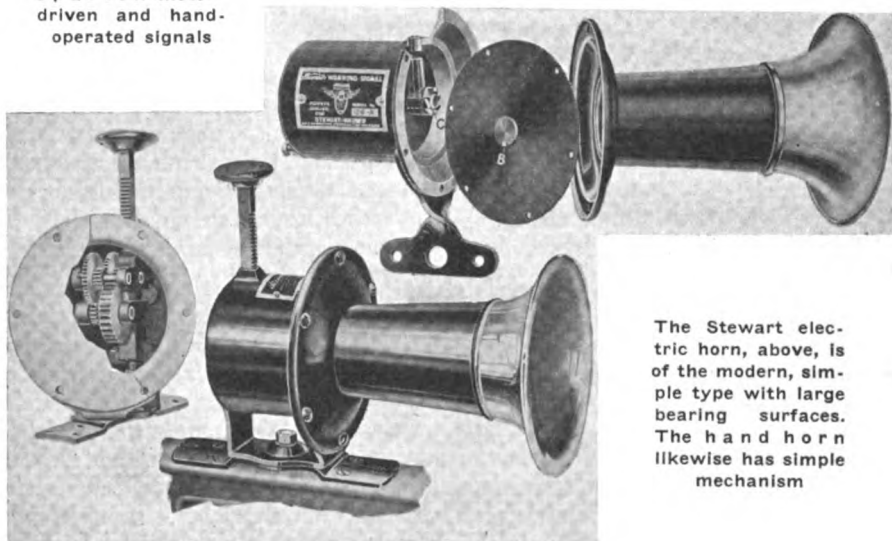
bearing of the wheel nearer to the diaphragm.

Klaxon — Lovell-McConnell Mfg. Co., Newark, N. J.—There are two hand horns, continued without change, the Hand Klaxon and the Hand Klaxonet, \$7.50 and \$4, respectively. The former has a vertical hand plunger while the latter has a horizontal one extending out of the back of the horn. The sound in each is produced by the rotation of a toothed cam or wheel against a steel diaphragm, the movement of the wheel being transmitted from a rack on the hand plunger shaft.

Long—H. W. Johns-Manville Co., New York.—The sound is produced by operating a vertical plunger knob which rotates a train of gears which drives the rotor at high speed; projections on the latter cause the vibration of the diaphragm and thus make the sound. The horn is made in two models, S, a large type, \$18 with finish in brass, black, nickel, black and brass or black and nickel; and JS, a smaller type for \$10 with the same choice of finishes.



Upper — Apollo electric; center — Hand-phone; lower—Newtone electric



The Stewart electric horn, above, is of the modern, simple type with large bearing surfaces. The hand horn likewise has simple mechanism

Evergood—Emil Grossman Mfg. Co., Brooklyn, N. Y.—A very substantial hand horn built especially for trucks. It is operated by pushing down on a vertical handle. The finish is black enamel, and the price is \$4 for the 5½-in. oval bell, and \$5 for the 6-in. bell. The mechanism is very simple and is ruggedly constructed.

Automobile Supply Mfg. Co., 220 Taaffe Place, Brooklyn, N. Y.—The Handphone is a hand-operated horn, the mechanism of which is actuated by a plunger; the plunger is carried in a guide in the top of the cylinder containing the mechanism. With bracket, \$3.50; for Ford use a special type of bracket is supplied in place of the standard bracket at the same price.

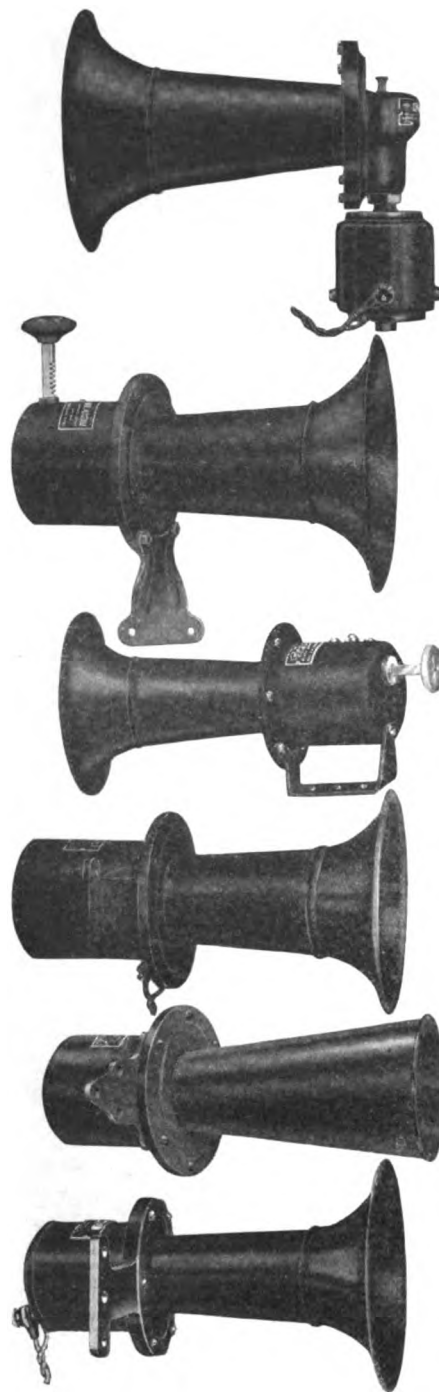
Double-Warning—Talking Horn Co., Middletown, N. Y.—This is a hand horn which is operated by pulling a strap out from the back of it, the faster the strap is drawn the louder the signal; when the strap is released again the signal is repeated. In case the horn is mounted some distance away from the driver it may be operated by attaching a leather cord, which may be fastened to the steering wheel where it is within easy reach. \$6.50.

A-K—Angsten-Koch Co., 215 Englewood avenue, Chicago.—A single hand horn is manufactured with two lengths of projectors. The mechanism is contained in a cylindrical housing at the rear end of the horn and is operated by a plunger. A substantial bracket is provided for attachment to the top of the door or body rail. Finish, black or black and nickel; either finish and either projector, \$3.50.

Seiss—Seiss Mfg. Co., Toledo.—Two models of hand horns, both new. A continuous sound may be produced since the signal is made by turning a crank. Model M, \$3.75; Model 4, \$4. Dealers, 25 to 33 per cent, according to quantity.

Garford—Garford Mfg. Co., Elyria, O.—Three models of horns: Rexo II, the motor horn and the small motor horn. The Rexo is a 6-volt type vibrator horn with a ventilating and draining device to prevent rusting of the diaphragm and collection of water and dirt. Underhood model in black enamel and models for outside mounting in black and nickel or black and brass. Rexo II, \$3.85; large motor horn, \$7; small motor horn, \$5.

A. W. T.—American Watch Tool Co., Waltham, Mass.—A new horn of substantial design in which solidity of mounting is gained by curving the body of the horn downward so that the supporting feet are short and stocky. This construction allows the operating knob



The Klaxon line is complete

to be placed at a convenient angle for operation either by hand or foot. All moving parts are supported by brass bearings and the striker may readily be adjusted by unscrewing the horn bell. An added feature is the fact that the bell and the operating knob may be unscrewed from their mounting and the two put together to make an emergency drinking cup or receptacle for putting water in the radiator. \$3.50. Dealers, 40 per cent.

Clero—Fitzgerald Mfg. Co., Torrington, Conn.—Two models, A and F. The former has a long bell and is suitable for any car, while the latter is equipped with a short bell and is for small cars. Stand-

ard finishes are: black; black and nickel; black and brass. Price, model A, \$4; model F, \$3.50. Dealers, \$2.50 and \$2.25, respectively.

Samson-Lion—American Electric Co., Chicago.—A new hand horn is made with a vertical operating plunger. It is enameled black except for the flared end of the bell, which is nickel or brass, as desired. \$4.50. The Samson-Tiger differs from the above in that it is sounded by a twist of the wrist. \$5. Dealers, 55 per cent.

Other Signals

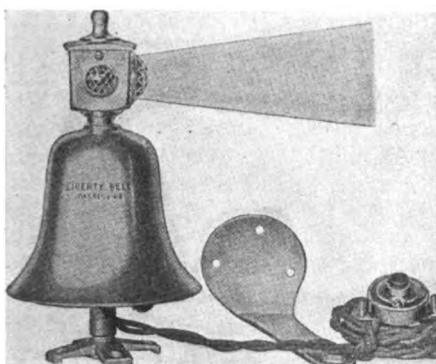
Gemco—Gemco Mfg. Co., Milwaukee.—Two models, Superior Long-Distance and the Melody. The former is cast aluminum, nickered, \$3.45. The latter is a somewhat different design whose feature is that a powerful note can be produced by a very weak exhaust; 14 in. long, \$3.75; 8 in., \$2.50. All horns are for 1-in. pipe. The above prices do not include fittings, the cost of which varies with the type of pedal and valve selected. G valve and large Melody horn, \$4.90; G valve and small Melody horn, \$3.75; G valve and Superior horn, \$4.45.

Nightingale—Riley-Klotz Mfg. Co., 17 Mulberry street, Newark, N. J.—This signal is exhaust operated. The whistle is heavy brass tubing and is fitted with a clamp by which it may be attached either before or behind the muffler. The outfit consists of the whistle itself, two elbows, 9-in. nipple, cable, handle, spring, screw eye, pulley and spring controlled valve. Without clamp, \$7; clamp, 75 cents, any size.

Aeromore—Fulton Co., Milwaukee.—Four tones are produced. The horn may be fitted either just in front of the muffler or at the end of the muffler pigtail, fittings being provided for both installations. \$5 to \$7.50, according to size.

Marvel—Marvel Accessories Mfg. Co., Sixth street and Lakeside avenue, Cleveland.—This is a combined fan and horn which takes the place of the regular fan and is driven in the same way. In the hub is a diaphragm and mechanically operated vibrating mechanism which is put in operation by a lever. The sound can be controlled by the amount of movement of the lever. \$6.

Gabriel—Gabriel Horn Mfg. Co., Cleveland.—The line of exhaust horns comprises a single tube horn with three tones; a 10-tube horn with 10 tones; and a 4-tone horn with 4 tubes. The single-tube horn is made in four sizes for different powers, the cost varying from



Liberty Bell electric signal

\$15 to \$35. The large model 10-tone horn is provided with a keyboard and a tune may be played; for cars less than 30 horsepower, \$175, and \$200 for larger cars. The 4-tube horn has tones arranged so that trumpet and bugle calls may be played; for cars less than 30 horsepower, \$74, and \$80 for larger cars.

Autochime—Gray-Hawley Mfg. Co., Detroit.—A three-tone horn made in two sizes and operated by exhaust pressure. Senior, 2 x 15 in., \$4; Junior, 2 x 9 in., \$3. Valves, \$1 and \$2.50, depending on whether the exhaust pipe is under or over 2 in.

Barco Chime—Barco Brass & Joint Co., Chicago.—This is a three-tone chime housed in a cylindrical casing. There are two sizes, 2¼ x 14½ in. and 2 x 11½ in. The latter lists at \$7 and \$7.50, depending on style of valve, and the former at \$9 to \$12, according to valve. The horn may be attached either fore or aft the muffler, according to the fitting chosen.

Trinity Bell—Trinity Bell Electrical Mfg. Co., 5108 Calumet avenue, Chicago.—This signal consists of a bell of the conventional conical form having in its interior an electrically operated clapper controlled by a button placed near the driver, and on its top an electric light which flashes red when the bell is sounded. Three models are made. Model A, 3½ in. diameter, \$6; Model B, 5 in. diameter, \$10, and Model C, 6 in. diameter, \$12. Each bell has 12 ft. flexible cord. Various ornaments and emblems may be had in place of the light at the same price.

Beartone Fan-Horn—Oakes Co., Indianapolis, Ind.—This horn is for Fords only and combines the fan with it. The complete device is mounted on the fan bracket in place of the regular fan and the horn is operated by pulling a lever which brings the cam, which is stationary, in contact with the diaphragm, which rotates with the fan. \$5. This fan is also combined with a single-cylin-

der tire pump with hose and gauge, \$7.50.

Liberty Bell—The Liberty Bell Co., 401 The Arcade, Cleveland.—This is a bell signal of conventional form, with an interior mechanism for electrically operating the clapper. The bell is mounted on a standard attaching to a bracket in several forms for mounting on the front of the radiator, the dash or side of car

or under headlight. One bracket goes with each lamp. In some models the bell is surmounted by an electric light with red bullseyes, and others have eagle ornaments and plain tops. There are three sizes and nine types. No. 2, with light, \$14; with eagle, \$12. No. 1, with light, \$12; with eagle, \$10. No. 2, with plain top, \$9.50. No. 1, plain top, \$7.50. F. S. model with light, \$7; with eagle, \$6; plain top, \$5.50.

Bumpers

Ever Good—Emil Grossman Mfg. Co., Inc., Bush Terminal, Brooklyn, N. Y.—Bumpers are made to fit all cars. No. 5441, adjustable type, round bar, has ratchet adjustment plates to adjust elevation and the telescoping arms are adjustably clamped to the car; 2-in. bar, brass or nickel, \$9.40; black and nickel, \$8.25. The same general type of bumper with channel bar, black or nickel finish, 2-in., \$7.05 and \$8.25; 2½-in. bar, \$8.25 and \$9.40; 3-in. bar, \$9.40 and \$10.60. Same type, diamond bar, 1½-in., nickel, \$10.60; black and nickel, \$8.80; 2-in. bar, black and nickel, \$10.60; nickel, \$11.75. Clamp-on Ford bumper, 2-in. channel bar, brass or nickel, \$6.45; round bar, 1¼-in., black, \$4.70; brass or nickel, \$5.65. 1¼-in. diamond bar, brass or nickel, \$7.05. Double spring Ford bumper with bar of strips of spring steel, black and nickel, \$7.50; nickel, \$8. Fits all, for any car with down-curved frame ends, 1¼-in. round bar, black, \$5.05; nickel or brass, \$6.10; black and nickel, \$5.65; 2-in. round, black and nickel, \$7.40; 2-in. nickel or brass, \$8.25. Channel bar, 2-in., black, \$6.10; nickel, \$6.70; 2½-in., black, \$7.30; nickel, \$7.90; 3-in., black, \$8.45; nickel, \$9.05. Diamond, 1¼-in., nickel, \$7.05; black and nickel, \$6.50; 1½-in., nickel, \$8.25; black and nickel, \$7.65; 2-in., nickel, \$9.40; black and nickel, \$8.80. Chevrolet 4-90 type, 2-in. channel, \$6.70; 1¼-in. round, nickel, \$5.90; black and nickel, \$5.30; 1¼-in. diamond, nickel, \$7.65; black and nickel, \$7.05. Saxon 6 type, round bar, 1¼-in., nickel, \$5.90; black and nickel, \$5.30; 2-in. channel, nickel, \$6.70; 1¼-in. diamond, nickel, \$7.65; black and nickel, \$7.05. The double spring bumper has a bar of 2½-in. spring steel with a short curved spring of flat steel at each bracket; nickel, \$10.50; black and nickel, \$9.

Sager—J. H. Sager Co., Rochester, N. Y.—A spring bumper and a Ford model have been added to the already extensive line. The Ford bumper is made with channel bar only and attached are a pair of long brackets with hook bolts for attaching to the frame flanges; cushion and springs are housed in the forward parts

of the brackets; black, \$6; brass bar, \$8. In the spring bumper the usual rigid bar is replaced by a strip of spring tempered steel doubled upon itself, the forward part being free to act as a cushion; with black bar, \$13; with nickel bar, \$15. The Sager Diamond bumper has pivoted brackets, is supplied with fittings for the rear arms resting on coil springs. Blows on the bumper tend to force it upward and the movement is resisted and cushioned by the springs; all black, \$15; black and nickel, \$17.50; all nickel, \$20. Sager Triangle with channel bar, channel flanges being bent in to take adjusting blocks for regulating the width between brackets is supplied with fittings for standard cars; black and nickel, \$10 to \$12. This model is also furnished with a universal adjustment permitting the bar to be set at any height at the same price. Universal Diamond has a diamond bar and is adjustable for both width and height; \$10 and \$12. Simplex type without universal adjustments, \$10 and \$12. Channel with universal adjustments, channel without universal adjustments. Universal with 2-in. round tube and special Franklin with diamond bar, all \$10 and \$12. Special Saxon bumpers, channel bars, brackets adjustable for width, cushion springs in brackets, \$6 black and \$8 nickel; these are made for both four-cylinder and six-cylinder Saxon models.

Halladay—L. P. Halladay Co., Streator, Ill.—These are made in three models and in special styles for Ford and Saxon Six. All three types are adjustable to practically every car and differ mainly in the method of clamping to the frame. The Universal bumper is attached by four bolts for each bracket; the Special has only two bolts but there is an extension on the bracket which bears against the frame horn and thus takes part of the strain from these bolts. There is a locking set screw which clamps this extension to the frame. The Simplex is somewhat similar to the Universal except that two U-shaped clips are used instead of four bolts. Channel bars or diamond-pointed channel bars may be

had on all models. The prices vary according to size and finish. The Universal costs from \$9 to \$12; the Halladay Special from \$10 to \$12, and the Simplex from \$8.25 to \$10. Prices on the Saxon bumper range from \$8.25 to \$10 and on the Ford from \$7.50 to \$8.

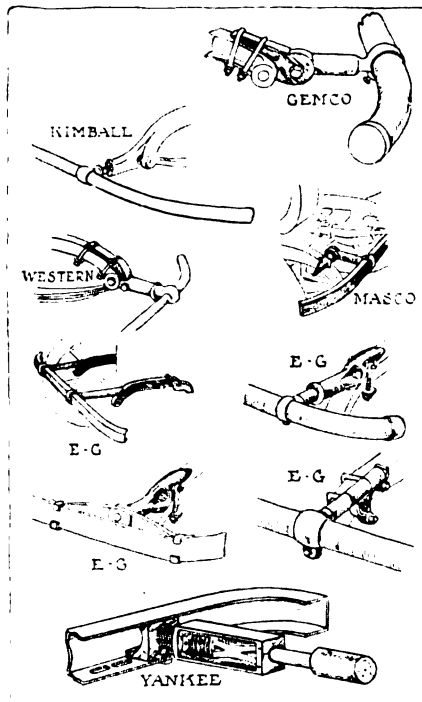
E-Z Clamp-on—Cox Brass Mfg. Co., Albany, N. Y.—This line includes bumpers which will fit any car on the market. The E-Z clamp-on, said to fit 90 per cent of all cars, has a notched wedge block by means of which the bracket height is adjusted, permitting the arms to be placed at any angle and the bar at any height. Attachment is by single clips on each bracket. Price, round rail, 1 1/4 in. diameter only, black, \$5, brass, \$6.50, nickel, \$8; channel, 1 3/4 and 2 in., black, \$7, black and nickel, \$9. Diamond bar, 1 1/4 and 1 1/2 in., black, \$7; black and nickel, \$9. A special model is made for the 1916 Cadillac, the brackets being designed to fit the front ends of the frame; with 2-in. nickel rail, \$10; 2-in. black enameled rail, \$8; 1 1/2-in. nickel diamond rail, \$10; 1 1/2-in. black enameled rail, \$8; 1 1/4-in. round rail, \$8 and \$6.50. Special model for 1916 Saxon, 2-in. channel or 1 1/2-in. diamond rail, nickel, \$9; 2-in. channel or 1 1/2-in. diamond, black enamel, \$7; 1 1/4-in. round rail, nickel, \$7; black enamel, \$5.50. Ford bumper, round or channel rail, black enamel, \$5; brass, \$6.50; nickel, \$7; dealers, all models, 40 per cent.

Standard—Standard Brass & Iron Works, Milwaukee.—The leader is a new type with a positive adjustment. Two other styles of bumpers include one for Fords. The adjustable feature consists of a toothed disk on the end of the bumper arm which fits into a disk on the bumper bracket which is clamped to the frame. This bumper is made with a diamond bar, size, 1 1/4 x 1 1/2 in., and with a channel bar, 2 x 1 1/2 in. The bars are nicked and the brackets are enameled black. Another type is the Bond bumper, which may be applied without any machine work. There are five styles, from \$5.50 to \$9, the former having malleable iron brackets and a brass bar with open spring, and the latter being nickel plated with covered springs. The Ford type costs \$8, \$9 and \$10, in black enamel, polished brass and nickel, respectively.

Perfect—Wm. E. Pratt Mfg. Co., 35 West Lake street, Chicago.—Ford bumper with channel bar and clamps for attaching to spring bar and braces extending to lamp brackets, black finish, \$7.50; dealers, \$3.65; nickel bar, black fittings, \$9; dealers, \$4.25; 1 1/4-in. round bar, black, \$6; dealers, \$2.90; round bar, nickel with black fittings, \$7.50; dealers, \$3.50; round brass bar, with black fittings, \$7.50; dealers, \$3.50; T-bar bumper, for any car, black enamel, \$10; dealers,

\$5; nickel bar with black fittings, \$12; dealers, \$6; brass bar with black fittings, \$12; dealers, \$6; nickel throughout, \$16; dealers, \$8. Channel bar bumper, same construction and prices as T-bar. Common Sense, round bar bumper, concealed spring and four-bolt clamps for frame, for any car, brass or nickel, \$6; black and nickel or black and brass, \$5.50; all black, \$5; with channel bar, all black, \$7; nickel bar, black fittings, \$8; dealers, 50 per cent.

McGregor—U. S. Auto Bumper Co., Chicago.—The McGregor flexible spring bumper has a double bar made of two



Modern bumpers can be put on quickly and easily without machine work

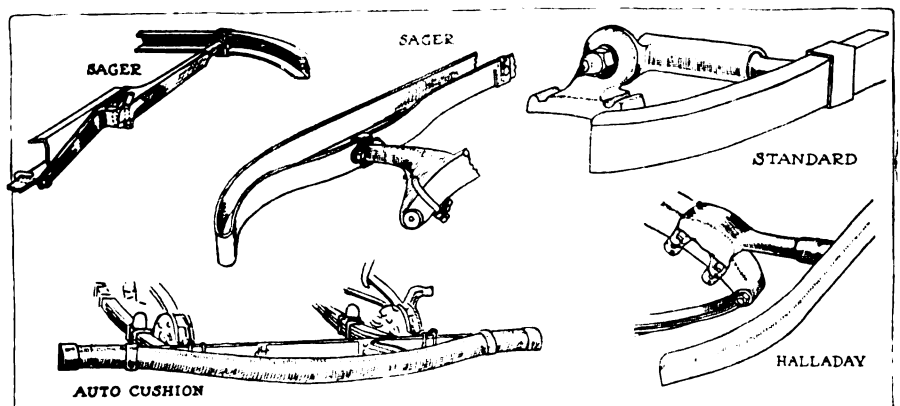
flat steel members connected at the ends by hinged joints. The arms are of the one-piece clamp-on type and attachment is made without drilling; black and nickel, \$14; all nickel, \$18. Diamond bar, 1 1/2 x 1 1/2 in., black and nickel, \$12; all nickel, \$16. T-bar, spring arms and notched sector for adjusting height and

angle, bar, 2 1/4 x 3/16, black enamel, \$10; black and nickel or black and brass, \$12; nickel, \$16. Reinforced channel bar, T section steel reinforcement riveted inside channel, black enamel, \$10; black and nickel or black and brass, \$12; all nickel, \$16. Common Sense bumper, channel bar, black, \$7; nickel bar, black fittings, \$8; round 1 1/4-in. bar, black, \$5; black and brass or black and nickel, \$5.50; nickel or brass, \$6. Knuckleaction bar with knuckle joint at junction of arms and bar, from \$8 to \$16. Clamp-on bar for Fords, channel, \$7.50 and \$9; round, \$6 and \$7.50. No. 3 bumper for Fords, black, round bar, \$4; channel bar, \$5; nickel, \$5 and \$6.

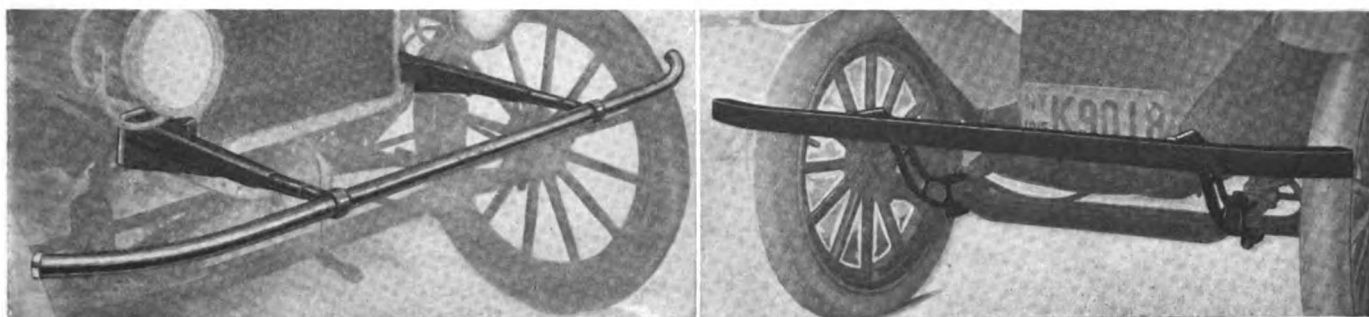
Gemco—Garage Equipment Mfg. Co., Milwaukee.—Two principal types are the Universal and the Gemco Patented Clamp-on. In addition, special types are made for most of the popular cars both for front and rear. A spring bar bumper is also manufactured. The Universal is equipped with a 1 1/2- or 2-in. round bar, or a 1 1/4-in. square bar. The bumper arms are clamped to the frame by two U-shaped clips per side. Upward and downward adjustment is provided for by having the contacting surfaces of the arm and bracket toothed. This bumper has a bracket which covers the front end of the frame horn. The Clamp-on type is attached to the top of the frame with two clips. Prices range from \$5.30 to \$13.25, according to type and finish.

Auto Cushion Fender—Auto Cushion Fender Co., Columbus, O.—The feature is the rubber cushion arched in the center to better take care of the shocks. The rubber tube or cushion is 2 1/2 in. in diameter and is made of 9-ply fabric with rubber inside and out. There is a 1 1/2-in. air space plugged at the ends. This tube is supported by a frame made of bar steel and which in turn is supported by the brackets which clamp to the frame horns of the car. These brackets are so designed that they will fit any car. Price, \$20; dealers, 40 per cent.

Chicago—Western Brass Mfg. Co., Chicago.—The Western Anchor Bolt-on



Another group of bumpers that anyone can install in a few minutes



Two of the many styles of Cox bumpers, both for Ford cars

type and the Chicago differ mainly in the type of bracket clamp. The former has four bolts per bracket and the latter two. In both constructions the clamp goes around the front of the spring horn so that the major strain of the shock comes on this part, the clamp merely acting to steady the bumper and to absorb any thrust. Prices range from \$6.50 to \$11, according to finish.

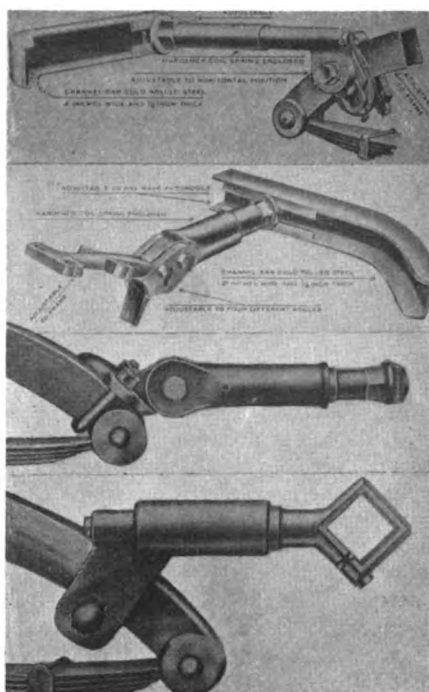
Yankee—Simplex Auto Specialty Co., Detroit.—This bumper is mounted on blocks sliding between upper and lower leaf springs which supplement the action of spiral springs. The whole spring mechanism is packed in non-fluid oil; constant tension prevents rattle; large, nickel, \$12.50; black, \$12. Ford type, nickel, \$8.50; black, \$8. Dealers, 25 per cent. Only a wrench is required for application and the bumpers will fit practically any car on the market.

Masco—Milwaukee Auto Specialty Co., Milwaukee.—The Masco bumper in channel or round section clamps to the frame side members and has adjustable knuckles to raise or lower the bar. Bars are of cold rolled steel; channel, 2 x 1½ in. and 2 x 1 in., and round in one size, 1¼ in; small channel, black hard rubber finish, \$7.50; nickeled bar and head, \$9.50; large channel, black, \$8; nickel, \$10; round, black, \$5.50; nickel, \$7.50. Dealers, 33⅓ and 10 per cent.

Kimball—C. P. Kimball & Co., Chicago.—The one model has brackets to fit each individual car and is bolted to the frame horns. Price, black bar with nickel or brass tees, \$15; all nickel or brass finish, \$18. Dealers, 33⅓ per cent.

Milwaukee—Milwaukee Auto Engine & Supply Co., Milwaukee.—The Milwaukee

channel bar bumper is attachable to most cars without drilling. The brackets are independently fastened to the frames by clips, after which the bar is slipped over the supports on the ends of the arms. The arms are adjustable at four different angles. Bar, 2 x 1½ in., ¼ stock, hard rubber finish, \$10; black brackets, nickeled bar, \$11; black bracket



Types of Milwaukee bumpers

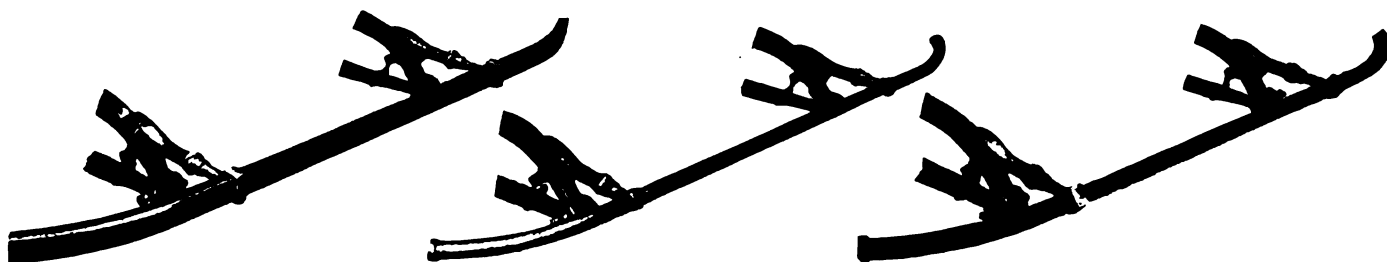
ets, nickled head and bar, \$12. Diamond bar bumper, same bracket construction, same finishes and same prices. The POC bumper for Overlands, channel, for frames up to 2 in., black finish, \$9.50; nickeled head and cross bar, \$10.50. For frames over 2 in., \$10 and \$11. With diamond bar for frames up to 2 in., \$9

to \$10.50. For frames over 2 in., \$10.50 and \$11. Champion channel bumpers attachable to any frame without drilling, independent bracket attachment with adjustment for angle, black hard rubber finish, \$9; nickeled bar, \$10; diamond bar, same finish and same price. Excel, channel bumper, like the Champion but without the adjustment feature, from \$7 to \$9.50, according to size of bar and finish. Conqueror bumper, U-shaped channel bar, adjustable arms for front or rear attachment, \$5.50 to \$7, according to size and finish. Hercules, round bar bumpers, bars of steel with brass tube covering, \$7 to \$14. Cadillac-8 type, channel bar, \$10 to \$12; this type of bar is also made for Hudson, Franklin and Pratt cars. Ford bumpers, channel, \$5.50 and \$6; diamond, \$7.50 and \$8; round, \$6 to \$10. Dealers, on all bumpers, 33⅓ and 5 per cent.

Valve Grinders

Kellogg—Kellogg Mfg. Co., Rochester, N. Y.—The Kellogg valve grinder looks like a breast drill, but unlike that tool, reciprocates the valve when the handle is turned so that the proper motion is given for satisfactory grinding. It is made of malleable iron and steel and has a flat-sided bit for engaging the valve. Price, \$2.50.

Marvel—Marvel Accessories Mfg. Co., Cleveland.—A crank-type valve grinder in which the continuous rotary motion supplied to the crank is converted into an oscillating one. The feature of the device is that the movement is always greater in one direction than in the other, so that no high spots can be produced. \$3.50; Ford size, \$2.



Three more Cox bumpers designed for quick and easy attachment without machine work

Speedometers

Stewart—Stewart-Warner Speedometer Corp., Chicago.—This is a magnetic speedometer, a circular magnet rotating within and very close to an inverted aluminum cup, being the moving principle. The magnet exerts a drag on the aluminum cup being the moving principle against the pull of a hair spring. Figures on the rim of the aluminum cup indicate the amount of displacement, which is in proportion to the speed of the car. The magnet is tungsten steel; the lower end of the pivot upon which the cup turns is mounted in a jewel. The dial figures are very large and show through an opening in the lower part of the dial, the upper part of which is occupied by the trip and total odometer figures. Model B-Z, 4-in. dial, 60-mile capacity, trip odometer 100 miles, season odometer 100,000 miles, resetting knob at bottom, silver etched dial face, \$60; same model may be had with a 100-mile speed dial at the same price. Model B-Z5 is the same as model B-Z, but is equipped with a tungsten light; \$55. This may be had with either 60- or 100-mile speed dial. These instruments are for projecting mounting; they may be had, however, at the same prices with flanges for flush mounting. Model 103, 4-in. dial, projecting type, 60 miles capacity, trip and season odometer, silver etched dial face, \$40; with 100-mile speed dial, same price; with tungsten electric light, \$45. This model may also be had for either flush or projecting mounting at the same price. Series 102, 3-in. dial, 60-mile or 100-mile capacity, flush or projecting case, trip and season odometer, silver etched dial face, \$25. Pointer type models with circular dial and centrally pivoted needle, 60 miles capacity, trip and season odometer, silver etched 3-in. dial face for flush or projecting mounting, 30 miles capacity, \$20. 2½-in. models, 75 miles capacity, trip and season odometers, black face, flush or projecting mounting, \$15.

Standard—Standard Thermometer Co., Boston.—Standard instrument is centrifugal, in two models, one for the Ford and the other for the Chevrolet 4-90, the only difference between the two being in the mountings; the Ford type has a supporting flange at the rear of the case with three lugs for screwing to the back of the dash, and the trip-reset button is at the upper right hand corner of the front of the case. The finish is black enamel. In the Chevrolet model the supporting flange is at the extreme front of the case, providing a flush mounting. All visible parts are nicked, and the trip-reset button is at the upper right

hand portion of the flange. The dial is regularly finished in black with white figures and white indicating hand. The feature of the instrument is that the figures on the scale are equally spaced, this result being achieved by the use of a spring resistance and a system of levers. The trip-reset is so geared that one turn will set the indicator back or forward 10 miles, so that it is never necessary to turn more than five times at the most. It is not possible to make an error in the trip odometer reading of more than .05 of a mile. For Ford installation a pressed steel adjustment bracket has been designed and installation requires only the removing of the right hand spindle nut, screwing on the special nut furnished with the speedometer, sliding on the pressed steel bracket and locking on the original spindle. Ford type with standard Ford drive, \$12; with pivot joint drive, \$14; Chevrolet type, \$15.

Corbin-Brown—Corbin Screw Corp., New Britain, Conn.—There are three models, a Ford, \$12; model B, \$30, and AA, \$25. The centrifugal principle is employed, a compound governor being used which gives a steady hand on rough roads. Cable of the mono-coil or dumbbell and shoe hook links may be had. Any model A speedometer can be furnished with a maximum hand which, if desired, can be locked to prevent resetting by the operator. Connection can be made to either right or left wheel. The Ford model has a 60-mile speed dial, 100-mile trip and 100,000-mile season odometers. The finish is black enamel with brass rim. Model B is provided with a 4-in. dial, 60-mile range, and 100 and 100,000 odometers. It may also be had with 30-mile dial for trucks. Model AA has a 55-mile dial and 100 and 100,000 odometers. This model, with flush mounting, is \$30. A new attaching bracket has been brought out which can be adjusted to four positions on either the right or the left hand, thus allowing the speedometer to be placed at the most readable angle.

Van—Elgin National Watch Co., Elgin, Ill.—In this instrument a blast of air from a small gear pump is directed against a vane on a pivoted cylinder on the outside of which the speed indicating numbers are marked. A hair spring holds the cylinder normally at zero. Many improvements have been made, chiefly in the matter of accuracy. All of the small gears are made to closer measurements; permissible variations of .001 in. have been reduced to .0001 in.,

and in some cases no variation is permitted. The steel hair spring on the indicating cylinder replaces the former copper spring. The pump mechanism consists of two long aluminum gears operating on exactly the same principle as a gear water pump. Calibration is effected by regulating the size of the opening through which the air current passes. The usual circular dial is employed, the figures on the cylinder showing through an opening near the top; these figures are unusually large and The makers state that vibration, temperature are indicated lower on the dial, and a resetting knob is placed on the right. The makers state that vibration, temperature changes, humidity and altitude do not affect the operation of the indicating mechanism. Instruments are supplied for flush or bracket mounting, black or nickel casing.

Hoffecker—Hoffecker Co., Motor Mart, Boston.—This is a centrifugal instrument and the same model is adapted to Fords as well as other cars. The dial is black with white figures and is graduated to 50 miles in 5-mile intervals; on the lower part is a total odometer. A maximum hand is provided, with a set-back knob on the side of the instrument. With fittings, \$12. A special model is made with both trip and total odometer faces.

Sears-Cross—Sears-Cross Co., New York.—These instruments are built in a variety of models both with and without clock combinations. The outstanding feature is the legibility of the dial, due to the large figures, made possible by arranging alternately on opposite sides of the scale. Trip and season odometers are fitted to all models, and all may be had in three finishes, polished brass, full nickel and black enamel. The two latter cost \$5 more than the former regardless of the model. Model S with 60-mile dial, \$35; Model T with 100-mile dial, \$40; clock combinations with electric light, \$75 to \$85. These prices are for brass finish.

Veeder—The Veeder Mfg. Co., Hartford, Conn.—The Tachodometer is a combined speed indicator and odometer, both instruments being driven by a flexible shaft from one of the front wheels of the car. Speed is indicated by a column of liquid in a glass tube, a small centrifugal pump keeping the column at a height corresponding with the speed of the car. There are no stuffing boxes and all bearings are ball. A thumb-wheel is provided to adjust the reading so that it will stand at zero when the car is stationary. The odometer has the conventional trip and season indicators and is mounted at one side of the metal plate carrying the speed indicator. With flexible shaft, sprockets and fittings, \$50.

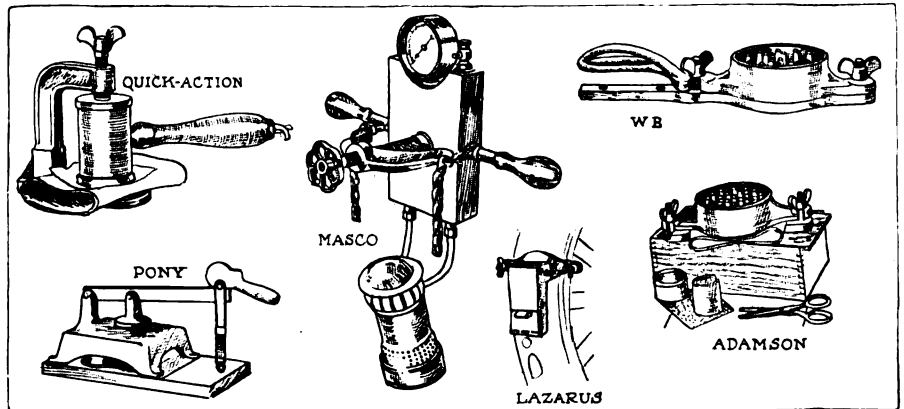
The Chronodometer consists of a stem wind and set 15-jewel clock mounted in the same case with a trip and season odometer driven by a flexible shaft, the clock case being extended at the bottom to take the odometer. With fittings for any make of car, \$50. Form I hub odometer, to be sealed in the hub, gives mileage record whether car is run backward or forward; \$20. Form K for Fords, \$15. Form B is an odometer for axle attachment, gear driven; with fittings, \$10. Form D, dashboard type with flexible shaft drive and trip and total indicators, \$20, with fittings for any car.

Garford—Garford Mfg. Co., Elyria, O.—In this speedometer centrifugal force is employed in an unusual manner, four steel balls running in a revolving drum or ball race mounted on the main driving shaft. In inverted cup-shaped member of steel is raised by the centrifugal movement of the balls and its movement is communicated to the indicating hand by a simple leverage. Only one spring is used in the entire system. One size is made, $3\frac{3}{4}$ in. in diameter with 60-mile dial and trip and total odometer. Scale reaches 60 miles. Finish, black enamel, nickel trimmings, \$25; special flush type, \$26.

J-M—H. W. Johns-Manville Co., Madison avenue and 41st street, New York.—Centrifugal mechanism is employed in this instrument, three brass weights swinging from fixed pivots around the spindle; the movement of the weights away from the spindle is communicated to a cam, which in turn moves the indicating hand. A number of improvements have been made. The entire movement is now mounted on a frame which can be lifted bodily out of the shell for inspection. The former instantaneous reset plunger is replaced by a wheel reset by which the mileage figures can be moved to any desired point. The governor mechanism has been made more sensitive in order to indicate very low speeds and the balance has been improved. The speed scale has been redesigned, being longer than before and semi-circular, with larger and more legible figures. The pointer cannot get in front of the odometer windows. All models are fitted with 100-mile trip and 100,000-mile total odometers. Nine models are offered, four $3\frac{3}{4}$ -in. diameter, four 4-in., and one Ford model. In the $3\frac{3}{4}$ -in. instruments, models 101 and 201 have no elbow; the former has a 60-mile dial and the latter an 80-mile dial. Models 40- and 409 are the same except that they have 57 deg. elbows. In the 4-in. models, 1001 and 1009 correspond with 101 and 201 in the $3\frac{3}{4}$ -in. series, and models 1201 and 1209 correspond with 401 and 409 in the smaller series. Model

2001-D is the Ford model. All models are furnished for dash mounting, semi-flush, full flush and with bracket riveted to shell. Standard finish is black and nickel for all except the Ford model,

which is black and brass. The $3\frac{3}{4}$ -in instruments, 60-mile type, are \$25 each; 80-mile type, \$30; 4-in., 60-mile, \$50; 80-mile, \$60; Ford model, \$12; dealers, 33 $\frac{1}{3}$ per cent; jobbers, 40 per cent.



Small portable vulcanizers that cure tire troubles quickly and are inexpensive

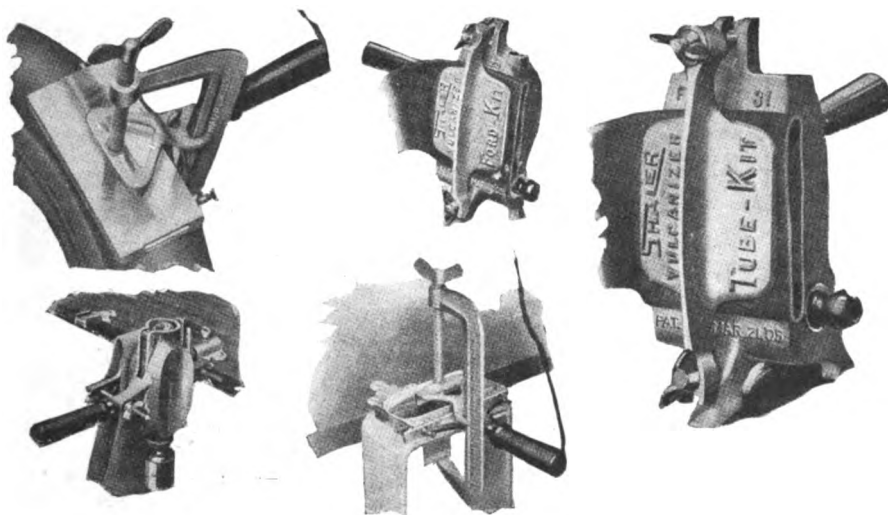
Portable Vulcanizers

Shaler—C. A. Shaler Co., Waupun, Wis.—This line includes garage apparatus heated by steam, electricity and gasoline, as well as several types for motorists. The Tube-Kit is a tool-box vulcanizer and is heated by a lamp burning either gasoline or alcohol, \$2. The Safety Vul-Kit, tourist model, mends both tubes and casings and is heated by alcohol or gasoline. The flame is not exposed. Complete with detachable handle, repair material and clamps, \$3.50. The Ford-Kit is designed especially for 3- and $3\frac{1}{2}$ -in. tubes and has the same general characteristics as the Vul-Kit; \$2.75. A larger portable outfit is the type S steam vulcanizer in which the alcohol flame is controlled by a thermostat so that the operation is automatic. It may be used on a casing of any size. The vulcanizing surface is 3 x 5 in. Complete with repair material, \$10. Type D, portable electric vulcanizer, is made to attach to any lamp socket and is provided with a thermostat. It is for tube and casing repairs up to $3\frac{1}{2}$ x 7 in. The current consumption is 70 watts; \$12.50. The service model garage vulcanizer resembles the preceding except that it has a manually-controlled rheostat and a built-in thermometer; \$20. Type C is an inside electric heater for blow-out repairs and is used in conjunction with the service model; \$20 to \$30, according to type selected. The steam vulcanizers for regular garage service are built compactly; six tubes can be vulcanized at once and a casing repaired at the same time. Steam is generated in a coiled tube which is heated by gasoline or alcohol; \$60; without casing attachment, \$35.

Adamson—Adamson Mfg. Co., East Palestine, O.—Made in two types, one for tubes and casings and one for tubes only. Both are of the open firebox type with vertical conducting pins to carry to the vulcanizing surface and both burn gasoline. Model U, for tubes and casings, mailing weight, 4 lbs., with complete outfit in wood box, \$3. Model T, for tubes only, mailing weight, 4 lbs., in wood box with complete outfit, \$2. Dealers, 30 per cent. Small garage vulcanizers also are made.

Marvel—Marvel Accessories Mfg. Co., Sixth street and Lakeside avenue, Cleveland.—Steam vulcanizers in three models, all burn gasoline. Model A for tubes and casings, vulcanizing surface, $2\frac{1}{2}$ x 3 in., \$1.80. Model B, slightly larger, \$3. Model C has a screw-and-chain attaching clamp which centralizes pressure on the tire and is slightly larger than Model B; \$3.50. All three models have sealed steam chambers, enclosed fireboxes and convenient handles, and are supplied with the usual equipment of repair materials. Marvel Junior, for tube patching, \$1.

Quick Action—Henry T. Adams & Co., 6823 S. Chicago avenue, Chicago—Electric vulcanizers are made for use with a 6-volt storage battery, with the 12-volt Ford magneto current and for house lighting circuits. The vulcanizer acquires its maximum temperature in a brief time after the current is turned on. The Ford type works on the Ford magneto current and will operate whether the motor runs fast or slowly. Price, portable types, vulcanizer only, \$5; dealers, \$3.38. With complete outfit, including



The Shaler line of vulcanizers includes gasoline, steam and electric types

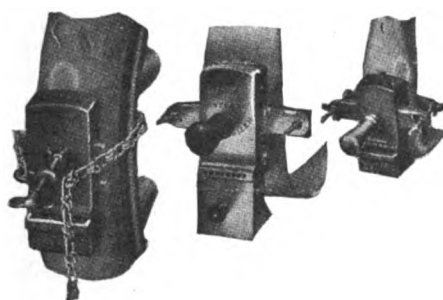
tube clamp, casing clamp, curved shoe, vulcanizing rubber and glazed cloth, \$7.50; dealers, \$5.25. Ford dash socket, wires and terminals assembled, 75 cents; dealers, 50 cents. Special outfit, including two vulcanizers, one for car and the other for house current, \$13.50; dealers, \$9.

Pony—Horsey Mfg. Co., Cleveland.—This alcohol-heated tube vulcanizer stands on four legs with a space underneath for the lamp; a lever pivoted over the heating plate presses a circular plate down on the tube and is held in place by a spring adjustable by a cam and lever. The lamp is packed with asbestos and covered with wire gauze. The round plate is slightly concave, the object being to give the repair a feather edge. A recent improvement consists in adding a thin plate which permits doing larger repairs than with the standard plate only. Vulcanizing surface, 3 x 4 in; round plate, 2½ in. diameter; hard wood base, 6 x 11 in; \$3; dealers, single lots, 25 per cent; per dozen, \$25.

Masco and Radio—Milwaukee Auto Specialty Co., 705 Chestnut street, Milwaukee.—Masco is an alcohol-heated steam vulcanizer for tires on or off the wheel. The same water is used continuously. Steam can be raised to 60 lbs.

in 8 min.; gauge and safety valve are fitted. There are two principal parts, the hot plate and the steam generator, connected by a pipe. The Radio is a firebox type, a pad of asbestos absorbing sufficient alcohol or gasoline for one repair. Masco, \$10; Radio, \$2.50, or \$3 with bench clamp.

Eureka—Gwynn-Bacon Vulcanizer Co., 3155 Magnolia avenue, St. Louis.—This is a steam vulcanizer heated by elec-



Three sizes of Marvel vulcanizers

tricity, the heat being automatically controlled by a pressure gauge which cuts off the current when the pressure of steam rises to a predetermined point and cuts it in again when the temperature falls below that point. The gauge also shows the pressure, which can be regulated by a button. Price, for alternating

current, \$15; for direct current, \$18. Dealers, 40 per cent.

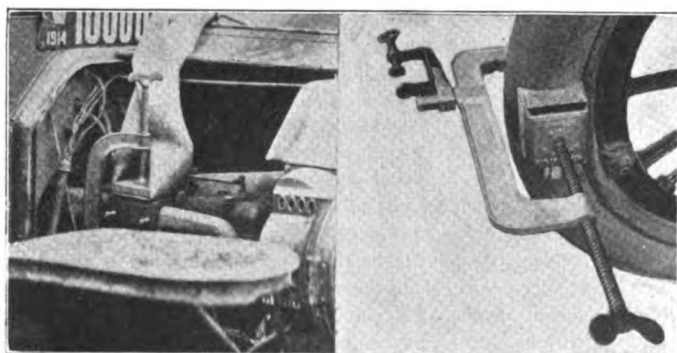
Exhaust Heated—Atlantic Supply Co., Long Branch, N. J., Sales Agents—A tube vulcanizer heated by the exhaust pipe, to which it is attached by a C clamp supplied with the outfit; thermometer attached. Price, Ford model, \$3.00; dealers, 30 per cent.

Positive—Midland Supply Co., Davenport, Ia.—Two models are made, burning gasoline or alcohol, one for tubes only and the other for tubes and cases. Both have steam compartments; the combination has a rectangular body with the water compartment next to the tire face; integral bars carry the heat from the firebox to the water chamber. A steel hood covers the firebox when in use. Firebox, bars and water compartment are made in a single piece. \$3.50; dealers, \$2.25. Tube vulcanizer, \$1.50; dealers, \$1.

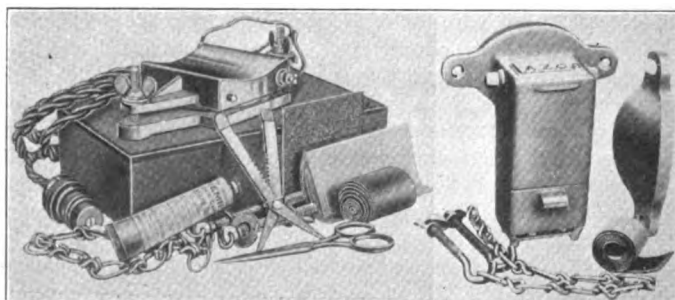
National—National Cement & Rubber Co., Toledo—This tube and casing vulcanizer burns gasoline or alcohol, heat being greatest at center of the plate, thus protecting rubber surrounding the patch. Price, \$2.50; dealers, 40 per cent.

Lawall—The Lawall Vulcanizer & Mfg. Co., Richmond, Ind.—This enclosed flame gasoline burning type vulcanizer for tubes and casings has an aluminum combustion chamber. The outfit includes a malleable iron clamp and bench swivel. Price, \$5.00, packed in canvas case. Dealers, 40 per cent.

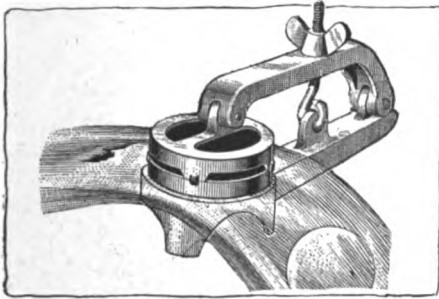
Lazco and Two-in-One—Lazarus Mfg. Co., 746 Euclid avenue, Cleveland—The Two-in-One vulcanizer is of the steam type, having a chamber in which water is placed at the factory, where the opening is sealed. Gasoline placed in the burner burns itself out and provides sufficient heat to raise steam and effect a cure. Can be used for casings and tubes. A new model is a smaller edition of the Two-in-One and is called the Lazco. It is intended for Fords and other small cars. Two-in-One model, \$2.50; dealers, 50 per cent. Lazco, \$1.50; dealers, 40 per cent.



Left—Exhaust heated vulcanizer, showing method of operation.
Right—The Lawall in place on a casing job



Left—The Premier electric outfit includes all necessities.
Right—The Lazco may be used on tubes and casings



Marvel gasoline tube vulcanizer

W. B.—Western Brass Mfg. Co., Chicago.—"On the Road," casing vulcanizer,

burns gasoline, plain firebox type, may be used while tire is inflated, fitted with folding handle and chain clamp, black enamel finish, \$2. Inner tube vulcanizer, burns gasoline, has round firebox with heat absorbing pins; black enamel finish, 80 cents.

Premier — Premier Electric Co., 4036 Ravenswood avenue, Chicago—An electric type for tubes and casings, regulated by automatic thermostat. It weighs 2 lbs. and operates on battery current or 110-volt lighting circuit. Price, \$3.50. With special connecting cords and base, \$5.00.



The Waltham line of clocks includes practically every type for cars from the costliest limousine to the lowest-priced roadster

Clocks

Waltham—Waltham Watch Co., Waltham, Mass.—All Waltham motor car clocks have eight-day movements and can be supplied in bright nickel, black nickel or polished brass, with silver metal, black metal or white enamel dials. All have 15 jewels and are adjusted to temperature. Model B, closed car type, sets at an angle on the dashboard and has a square base and rounded top with winding stem at 12; an indicator shows when the clock is within three days of running down. Two simultaneously winding main springs are used. The same model is furnished in inverted form with square side up and winding stem at the bottom. Model L, for special cars, is mounted in a square base. Models S and D are for open cars and have weatherproof cases and round projecting bodies. Model C, weatherproof, is for metal dashboard mounting and has locking rings; dial, 2½ in. diameter. Models V and W are similar but have 3¼- and 3¾-in. dials. Model M, flush type, water-

proof, has a screw ring for locking to metal or wood dashboard. Model O is a truck clock and can be locked so the driver cannot tamper with it. In all these models the movements are practically alike and in each case the price is \$25. A limousine watch is mounted on the front of a leather case, has 15 jewels and, like the others, runs 10 days, giving notice three days before running down. With morocco case, \$30; glazed leather, \$35; lizard, \$38.

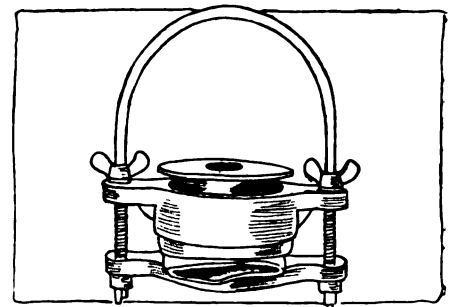
Warner—Stewart-Warner Speedometer Corp., Chicago—This clock is electrically self wound by a single dry cell, which is sufficient to keep the clock going for 6 months. Current may also be taken from the storage batteries, changing a dry cell necessitates only the removal of the old one and the insertion of the new one, connections being automatically made. The clock has a 3-in. dial with white figures etched on a black metal ground. Attachment to the dash

or instrument board is by a flange; both flush and projecting types are made. Price, with battery box, dry cell and connecting cord, \$15.

Keyless—Keyless Auto Clock Co., 246 West 59th street, New York.—A number of models are made, all embodying the rim-winding and setting feature; there are no projecting buttons or other protuberances. Some of the prices are: No. 9, cowl type, 2¾-in. dial for Cadillac, Chalmers, Cole, Buick, Hudson, Chandler, Overland, Reo, White, Paige and Hupmobile, \$10; dealers, 1 to 24 clocks, 40 per cent. 12B, same clock with 2¾-in. dial, for same cars, \$9.50; dealers, 25 to 49 clocks, 40 and 10 per cent. These are the two models that are furnished with the special dials. There are five other keyless models ranging in price from \$8.50 to \$10, and sixteen models of key clocks, one- and eight-day, at prices from \$1.95 to \$7.50; dealers, 1 to 12, 35 and 10 per cent; 13 or more, 40 and 20 per cent.

Sessions Clock Co., Forestville, Conn.—Four models. Nos. 1 and 2 are for outside mounting; No. 1 is suitable for Fords and has a one-day movement in a double casing of brass. The 2½-in. dial is of porcelain and has a second hand. Brass, nickel or black enamel finish. Price, \$2.50. No. 2 is an eight-day clock with outside wind and set, is 4 in. high and has a 2½-in. iveroid dial with second hand. It is also a Ford model. Price, nickel or black enamel with nickel trimmings, \$4.25. No. 3 is an eight-day cowl clock for flush mounting and has a 2½-in. iveroid dial with second hand and a 3½-in. rim. Nickel finish. Price, \$4.25. No. 4 is of the general type of No. 3 but has a one-day movement. Price, \$3. Dealers, all models, 50 per cent.

Chelsea and Boston—Chelsea Clock Co., Boston—Chelsea 8-day clocks are in the following models: No. 350, stem wind and set, flush insert, 3-in. dial, white figures on black ground; winding and setting by knurled knob in front below dial. Price, \$26. No. 351, stem wind and set knob at the side of the case, 3-in. dial, \$26; 3½-in., \$28; 4-in., \$30. Key wind, 3-in. dial, \$22. Flange inset type, stem



National gasoline tube vulcanizer



Johns-Manville flush type

wind and set at front, \$26; stem wind and set at back, \$26. Dash gripper model, 3-in. dial inset with back screw ring for clamping case on dash or cowl board with key wind, \$24; front or back stem wind, \$28. Boston models, 8-day movements, 3-in. dial, projecting type, front knob wind and set, \$22; projecting model with side knob wind and set, 3-in. dial, \$22; 3½-in. dial, \$24; 4-in., \$36; flange inset, 3-in. dial, key wind, \$18; stem wind and set at front or back, \$22; Boston dash gripper, key wind, \$20; stem wind and set at front or back, \$24; Boston electric clock, flush inset type, 3-in. dial, electric winding mechanism wound for 6-volt storage battery current or 1½-volt storage battery (1 cell), \$33, including dry cell.

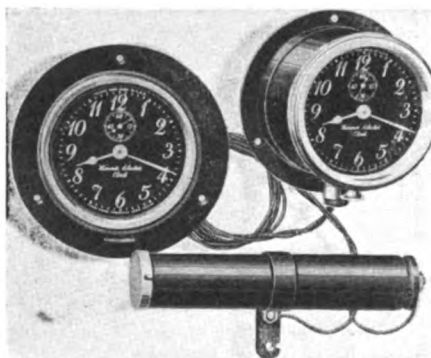
J-M—H. W. Johns-Manville Co., New York—A 3½-in. clock with 8-day movement for flush or projecting mounting, finished in black and brass, black and nickel or all black; the dial is of white porcelain or silver finish with black figures, or of dead black with white figures and hands. The winding and setting keys are not detachable; movement is easily removable for winding and is enclosed in a dust- and moisture-proof case with heavy crystal permanently attached. In addition there is an outside casing which encloses the winding keys and attaching screws. \$5. Dealers, 33⅓ per cent; jobbers, 40 per cent.

Hartford—The Hartford Clock Co., Hartford, Conn.—This clock is electric winding and operates on from 1 to 6 volts, the best results being obtained from two No. 6 dry cells. Storage battery current may be used if more convenient as long as the voltage is not more than 6. Both inset and projecting models are made, the former having a flange for attachment and the latter screws at the back. Diameter, 3¼ in.; depth of extended model, 2½ in. Dials may be black or silvered. The movement is seven-jeweled, compensated, and the electrical contact points are of pure silver and self-polishing. The inside

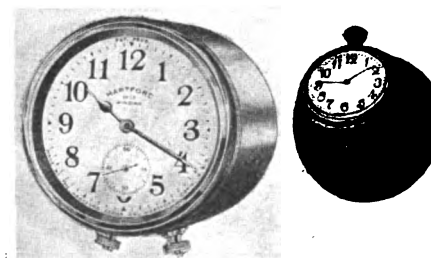
case is of rubber composition to absorb vibration. Either model, \$10.

Thompson—Thompson Electric Clock Co., Memphis, Tenn.—This clock is electrically operated, being wound by magnets taking current from any 6- or 12-volt battery or from dry cells. No wires enter the case, which is dust and water-proof; it is mounted flush in the dash or cowl. The dial is 2¾ in. diameter and the depth of the clock about 2½ in. Conventional methods of setting and regulation are employed. Price, \$12.

Big Ben—Western Clock Co., La Salle, Ill.—This timepiece is a watch fitted into a brass or nickel-plated holder with



Stewart electrically wound clock

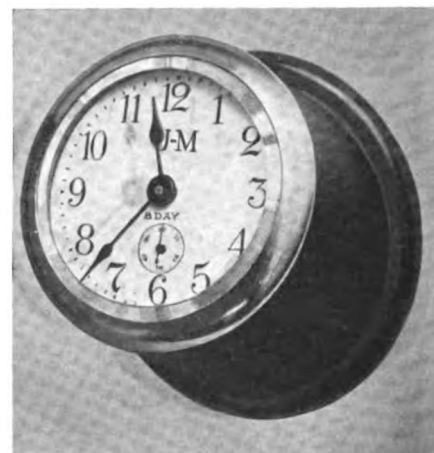


Hartford electric

Gem dash clock

flanged base for fastening to the dash-board; the stem projects at the bottom. The front of the case unscrews to permit regulation. Base, 2¼ in. square. Price, \$2.50; dealers, \$1.25. Non-magnetic movement.

Gem—Peck-Hamre Mfg. Co., Berlin, Wis.—This small clock with a conical base tapering from 3¼ in. in diameter to 2¼ at the dial, has a movement of the watch type with outside stem wind and set, projects 2¼ in. from dash. Price,



Johns-Manville projecting type

\$1.50; dealers, \$12 per doz. with nickel finish; \$9 with japanned finish.

Gloves

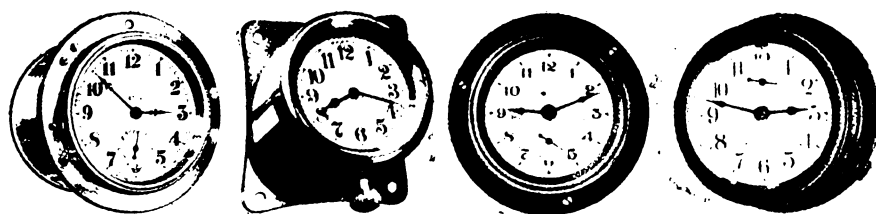
Crosby — Crosby-Frisian Fur Co., Rochester, N. Y.—There is a full assortment of leather and fur gloves and mittens, but the leader is a gauntlet of buck-tanned slate horse hide. It is lined and stiffened with sheep leather, except the palm of the hand. \$4; same glove lined with mohair fleece, \$4.50.

Great Western—Ellsworth & Thayer Mfg. Co., Milwaukee—There are a variety of styles ranging in price from \$1.50 to \$4.50 and up. The line includes large gore cuff gauntlets, circle cuff gauntlets, strap-wrist driving gloves, folding cuff gauntlets and shell cuff gauntlets.

Price—Fried-Ostermann Co., Rockford, Ill.—Various types of gauntlets and mittens with prices varying from \$1.50 to \$6. A popular style is the Rein-deer washable glove with an extra large box cuff 7½ in. deep, 20 in. in circumference; made with soft gore, 2 in. wide, leather bound throughout and snap-strap at wrist; \$4.50.

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Sessions

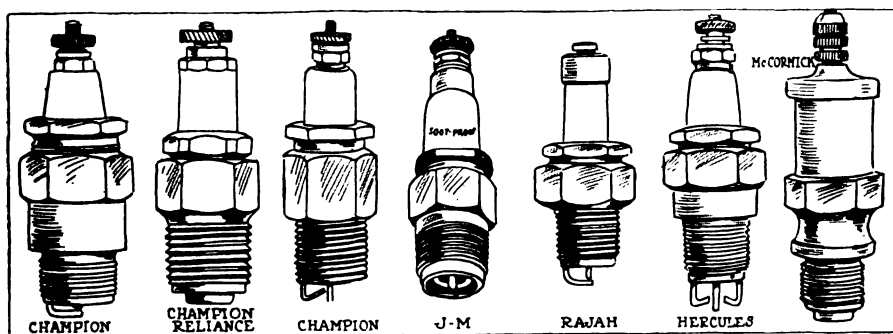
FOUR TYPES OF MODERN CLOCKS

Western

Thompson

Chelsea

Spark Plugs



The fact that many cars require particular types of plugs opens the opportunity for real constructive salesmanship

Champion—Champion Spark Plug Co., Toledo.—All of the many plugs in this line embody the same general features. The insulating core has a shoulder to take the packing consisting of two annealed copper gaskets lined with graphited asbestos. Both upper and lower edges of the shoulder are packed in this way. Porcelain, stone and mica cores are manufactured; points of manganese nickel. The Champion X is a Ford plug with upturned shell electrode, 75 cents. Champion O, ½-in. Overland, \$1. Champion Regular, ½-in., ⅞ and metric \$1. Buick model with long shell, conical porcelain and Buick terminal, \$1. Racing plug, one-piece stone insulation, ½-in., ⅞ and metric, \$1.25. Two-piece stone core, easily separable for cleaning, ½-in., ⅞ and metric, \$1.25. Priming plug, ½-in., ⅞ and metric, \$1.25. Meta type with extra long shell, \$1. Champion Reliance, with porcelain baked around fine platinum wire, for service where there is much moisture, ½-in., ⅞ and metric, \$1. Champion Reliance Magneto, with closed end conical porcelain platinum point, ½-in., ⅞ and metric, \$1.25. Champion Heavy Duty is a new model. It is of the same construction as the heavy one-piece stone plug but smaller for use where a small plug is necessary; ½-in., ⅞ and metric \$1. Champion mica plug of the same construction as Champion Regular but with mica core, all sizes, \$1. The line also includes motorcycle regular and priming plug.

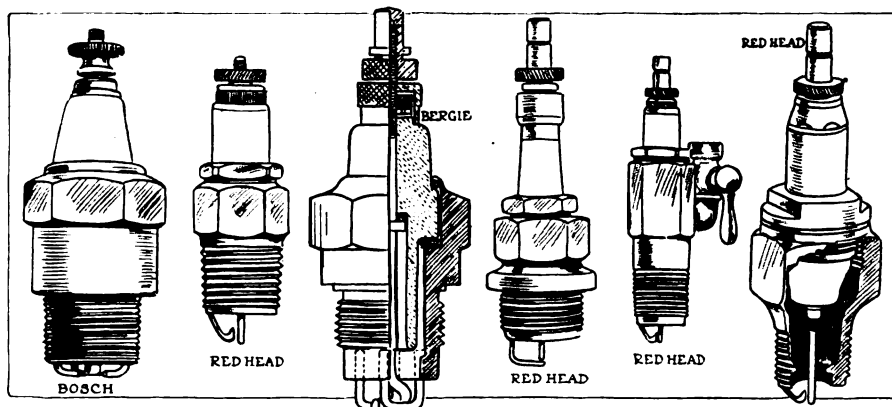
Red Head, Big Boy, Priming and Combination—Emil Grossman Mfg. Co., Inc., Bush Terminal, Brooklyn, N. Y.—The Big Boy has a large porcelain insulator, heat treated steel shell, steel bushing and three nickel steel shell electrodes bent toward the center electrode with sharp elbows for throwing off oil. The shell electrodes are flattened at the points to increase the sparking surface. The terminal nut is knurled and has a ball tip and a groove for snap terminals; all

sizes, \$1. The Red Head has porcelain or mica insulation and a single shell electrode. It is made in ½-in. standard, ½-in. extension, ⅞ S. A. E. and a number of special sizes, 75 cents; with platinum electrodes, \$1.50. The Red Head Priming plug has a small priming cup on the side which may be used to clean the plug when the engine is running; opening the priming cock permits the gases to rush out and scour the points. The porcelain is straight sided; mica insulation may also be had. Electrode is single, of meteor wire; all sizes, \$1.25. The Combination plug has a core of mica and porcelain. The electrode is insulated with porcelain in the explosion chamber and with mica in the upper part of the plug; all sizes, \$1.25. Throughout the line porcelains have been made heavier and the material in the sparking points has been changed to a manganese nickel alloy. In the case of the Red Head Big Boy, a new patent gasket is used and the former brass cone is replaced by a cone of copper.

Jumbo—Gibson-Hollister Mfg. Co., 3380 Washington street, Jamaica Plain, Mass.—This plug is made in four types—Jiant, Regular, Junior and Ford Special, the difference between them being chiefly

in size. The insulating core, which is of molite, a lava composition, is of unusually large size and is packed by means of a copper-asbestos washer. The central electrode is surrounded by a layer of special glass which fills a space left for the purpose between the rod and the core. There are two shell electrodes, each extending from one side of the shell to the other, passing on opposite sides of the central rod. All the electrodes are of nickel alloy and the shell electrodes are electrically welded in place. Shells are of cold rolled steel with rust-proof finish. All models except the Ford Special have triple terminals. Jiant, S. A. E., ½-in., metric and S. A. E. long, \$1.25; Regular, S. A. E., ½-in., and ½-in. long, \$1; Junior, S. A. E., ½-in., and motorcycle, 75 cents; Ford Special, 75 cents.

Rajah — Rajah Auto Supply Co., Bloomfield, N. J.—The most recent Rajah product is a waterproof plug, the waterproof feature being due to an elbow of insulating material connected with a metal cap fitting over the top of the plug; the projecting end of the elbow fits snugly over the cable insulation. This plug is furnished in all standard sizes with terminals to take any cable, \$1.50. The Rajah Giant, which is common with all other Rajah plugs, has imported porcelain insulation and imported sparking points, is made in ½-in. regular, ½-in. Ford, ½-in. long metric, motorcycle, ⅞-18 regular, ⅞-18 long, \$1.25; ½-in. priming, \$1.50. Thumb nut terminals are furnished with all ½-in. and metric plugs and both thumb nuts and stud terminals with ⅞-18 sizes. The Rajah spark plug hood is a porcelain cap fitting over the plug and cable end. In the Rajah bushing a knife edge on the lower part expands upon the shoulder of the porcelain when the bushing is screwed down, adapts itself to surface irregularities and presses the porcelain down evenly on the gasket. Heavy pressure is not required to make a gas tight joint. The regular Rajah plug is of the same general construction as the Giant,



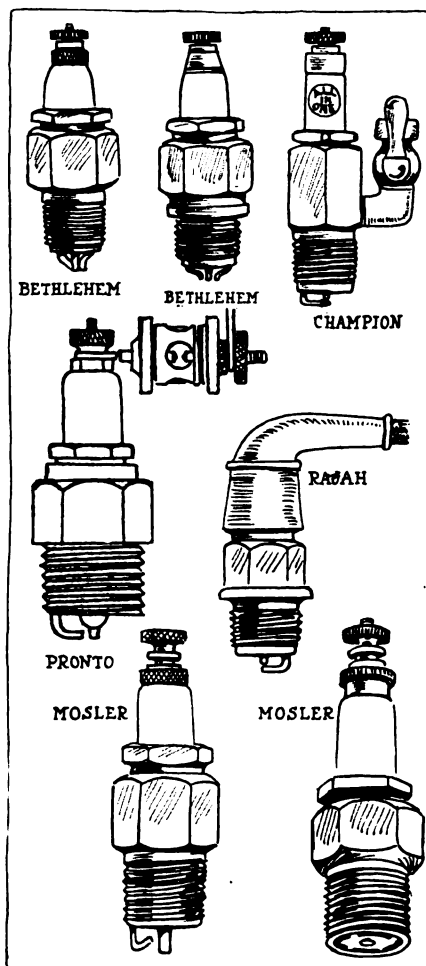
Probably there is no greater variety in one kind of accessory than is to be found among different makes of spark plugs

but the porcelain and metal parts are not so heavy. All sizes, \$1.25.

Mosler—A. R. Mosler & Co., P. O. Box M, Mt. Vernon, N. Y.—The Vesuvius is supplied in sizes suitable for all the motors on the market. It has insulation of vitreous artificial stone, and steel shell and packing nut. There are two shell electrodes extending from one side of the plug to the other on opposite sides of the central rod and curved at the center to form a part circle around the center electrode. The inside of each curve is flattened to form a knife edge. The copper asbestos gaskets are not loose, but are pressed into place one in the packing nut and one in the shell. The brass terminal nut is of the combination type. All sizes, nickel, \$1; dealers, 65 cents. The Superior Ford Special, has the same insulation, but has a single shell electrode bent sharply upward towards the center so that oil runs away from the extremity. The core has a deep petticoat with a space between the insulation and the shell and between the insulation and the central electrode, which is unusually stout. Blue finish, 75 cents; dealers, 30 cents.

AC—Champion Ignition Co., Flint, Mich.—The AC line includes the AC, the AC Titan, the AC Cico. The AC is of the detachable type and the others are not; all have porcelain insulation. The regular AC, made in $\frac{7}{8}$, $\frac{1}{2}$ and metric sizes with either porcelain or steatite, the long AC, the Ford Special and the long $\frac{1}{2}$ -in. Overland, which also is suitable for other cars requiring long plugs, list at \$1. The long body $\frac{7}{8}$ Titan, the regular $\frac{7}{8}$ Titan, the S. A. E. Titan, long and short types, regular, long, short metric, long metric and long foreign metric Titans also list at \$1. The AC Cico is made in $\frac{7}{8}$ regular and long. $\frac{7}{8}$ S. A. E. with small body, Dodge Bros. Special $\frac{7}{8}$, $\frac{1}{2}$ -in. and Ford Special, 75 cents. The long body $\frac{7}{8}$ AC Titan, the S. A. E. AC Titan, the long S. A. E. AC Titan, the long metric AC Titan, the Dodge Bros. Special and the S. A. E. Cico are new sizes but do not differ in construction from the others.

Bethlehem—Silvex Co., 171 Madison avenue, New York—All Bethlehem plugs have four shell electrodes converging towards the central rod and are made of a composition containing 97 per cent of nickel. Cores are of porcelain and mica, and shells of heat treated cold rolled steel. The construction is the same throughout the line, which includes all sizes and types. All the following plugs are listed at \$1.25: regular types, $\frac{1}{2}$ -in. standard, $\frac{7}{8}$ S. A. E., metric, Ford special with extension above threads, long metric, $\frac{1}{2}$ -in., with extension below threads, $\frac{7}{8}$ with extension below threads for Buicks, extra long $\frac{1}{2}$ -in., $\frac{7}{8}$ with



Still more variety in plug types

extension below threads. Knight motor type with double length threads in $\frac{7}{8}$ and metric. Type K, a new plug with mica insulation, designed for heavy service, is of massive construction, \$1.50; dealers, in quantities less than 3 dozen, regular $\frac{1}{2}$ -in., $\frac{7}{8}$ -18, metric, Ford Special, long metric, $\frac{1}{2}$ -in. extension, Buick Special, extra long models, Knight type, 60 cents. Type K, $\frac{1}{2}$ -in. and $\frac{7}{8}$, porcelain core, 75 cents; with mica core, 85 cents.

Bosch—Bosch Magneto Co., 223 West 46th street, New York.—The Bosch plug has one-piece artificial stone core fitted into a one-piece steel shell; a wedge ring at the top of the shell is forced down under heavy pressure and retained by rolling over the edge of the shell upon it. The packing is a copper asbestos washer. The central electrode is exceptionally heavy and the shell electrodes, three in number, have the ends spread into a crescent shape. Electrodes are of nickel steel. This plug is made in all sizes and with either thumb nut terminals of the usual type or pin adapter terminals; all sizes, \$1; dealers, 20 per cent.

J-M Metzger Soot Proof—H. W. Johns-Manville Co., Madison avenue and 41st street, New York.—This is a porcelain insulated plug made in two units,

one including the porcelain, electrode, packing nuts and gaskets, and the other the shell or body; this construction permits taking the plug apart without removing the shell from the cylinder. The porcelain petticoat extends to the end of the outer shell, the lower edge being exposed to the heat in the cylinder and thus kept clean. Supplied in $\frac{1}{2}$ -in. standard, $\frac{7}{8}$ -in. S. A. E. and metric sizes, 75 cents; dealers, 33 $\frac{1}{3}$ per cent; jobbers, 40 per cent.

Benford Monarch—Benford Mfg. Co., Mt. Vernon, N. Y.—There are a variety of models all fitted with special porcelains and having electrodes made of nickel alloy wire. They are made in metric, $\frac{1}{2}$ -in. and $\frac{7}{8}$ -in. sizes and special lengths for different cars; for instance, there are plugs for Buicks and Overlands, and a long shank plug for Fords. Porcelain plug with conical porcelain, 75 cents; extra porcelain, 30 cents. Reliable plug with petticoat porcelain, 75 cents; extra porcelain, 30 cents. Giant plug with a big air chamber to prevent sooting, \$1; extra cores, 40 cents. Mica Taper Tube plug, \$1. White Cap, similar to the preceding except that it has a porcelain cap, \$1.25. Special Overland plug with long porcelain and shank, 75 cents. Buick plug, similar to above, 75 cents. Special Long plug for Metz and Reos, 75 cents. Special for Fords with deep air chamber and long shank, 75 cents.

Benton—L. F. Benton Co., Vergennes, Vt.—These plugs have mica insulation, the core being built up of lateral hand windings on the central electrode. The mica core is forced into the bushing under heavy pressure and a porcelain cap is placed over it and held in position by a top nut. The porcelain acts merely as a protector to the mica and the plug would operate even with the porcelain removed. The end of the plug is closed with the exception of a small opening around the central electrode; the shell electrode is anchored at both ends and is curved to form a semi-circle where it passes the central stem. The gasket on the plug shoulder, just above the threads, is spun on and cannot be removed; a copper-asbestos gasket is used between the bushing and the top of the shell; no other packing is required. A new model is a $\frac{7}{8}$ -18 in. S. A. E. plug with ball terminal, especially designed for the Franklin. All sizes, \$1.

McCormick—McCormick Mfg. Co., Dayton, O.—This is a plug designed to convert the ordinary high-tension current into a very high frequency current; the result is a shower or series of sparks instead of the usual single spark. All sizes and style, \$2.

Auburn—Auburn Ignition Mfg. Co., Auburn, N. Y.—Both porcelain and mica

plugs are made as well as mica-porcelain and mica-stone combinations. No. 8 porcelain plug, with long hexagon is made in ½-in. standard, ½-in. extension, ⅞ S. A. E., ⅞ extension and metric, at 75 cents. No. 9 porcelain has an unusually large and heavy core, is made in ½-in. standard, ⅞ S. A. E. and ⅞ extension, all finished in polished black, \$1. No. 4, mica, for heavy duty, ½-in. standard, ⅞ S. A. E. and metric, \$1. Carbon-proof, with wire coil around sparking points to consume oil by heat and improve vaporization; brass construction, ½-in. standard and ⅞-in. S. A. E., \$1.50. The No. 9 heavy plug has a one-piece porcelain and is easily taken apart for cleaning.

Pronto—Pronto Mfg. & Sales Co., 634 Paxton block, Omaha—The Pronto spark gap consists of a small cylinder with the terminal at one end for attachment to the binding post of a spark plug and a terminal at the opposite end to which the spark plug wire is attached. Four openings in the cylindrical body permit the sparking points to be watched; the openings are covered with mica; each, \$1; set of four, \$3; lot of twelve sets of four, 50 per cent discount.

Duplex Multi — Duplex Multi-Spark Plug Co., Devils Lake, N. D.—This is a porcelain insulated plug, the central electrode being two disks, each having four small lugs radiating toward the shell edge, one disk being directly above the other; the inner disk is .005 in. larger than the other disk, so that the sparks occur in the cavity of the plug; all sizes, \$1.

Panther—B-A-T Co., Germantown and Stenton avenues, Philadelphia.—All Panther plugs have stone insulation coming to a rounded point in a large chamber. The center electrode is cemented and baked in the core; the insulation is held in place by a brass bushing with a brass ferrule above the shoulder. The shell is copper plated and oxidized to prevent rusting. Three long types are made for cars requiring extension plugs; \$1. Ford model with nickel sparking points, 50 cents. Panther Giant for heavy duty, \$1.25. Dealers, 50 to 70 per cent, according to quantity.

Su-Dig and Twin-Tact—Superior Motor Power Co., 30 Irving place, New York.—Two plugs are the Su-Dig, a series plug, \$1.50, and the Twin-Tact, \$1.50, a double electrode plug. The Su-Dig has two electrodes with separate terminals for wires and two sparking points, both insulated. By connecting one terminal to the magneto or coil lead and the other terminal to a second plug of ordinary construction in the same cylinder, the current passes through the two plugs in series and two simultaneous

sparks occur. In the Twin-Tact two insulated electrodes have exterior terminals as in the Su-Dig, but the sparks jump from the points to the grounded shell. The plug can be used as two plugs; the magneto may be connected to one terminal and a battery system to the other; this makes it possible to use a double ignition system where provision is made for one plug only. Both plugs are made in all standard sizes.

Hercules—Eclipse Mfg. Co., Indianapolis.—The Hercules Giant is a heavy plug with turned porcelain insulation made from imported kaolin. The center stem, turned from crucible steel, is of large diameter and has a shoulder within the porcelain. The lower end of the stem is drilled to take the firing point of a special alloy and the same metal is used in the two shell electrodes which turn toward the center at a sharp angle. The packing is of copper-asbestos washers. Shells and packing nuts are turned from cold-rolled steel. All sizes, \$1. The Hercules Junior is the same general construction, but is lighter and has a single shell electrode. All sizes, 75 cents.

Kingston—Kokomo Electric Co., Kokomo, Ind.—A single mica plug has plain center electrode and a single upturned shell electrode. The shell is of steel, the packing a copper-asbestos gasket and the points of alloy wire. The plug is made in ½-in., ⅞ and metric sizes; all sizes, 75 cents; dealers, 35 cents.

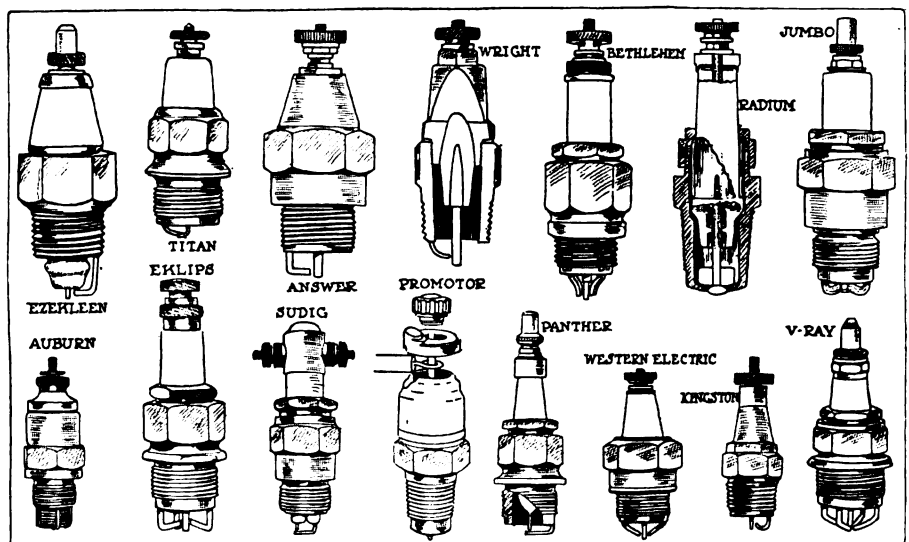
Splitdorf Common Sense — Splitdorf Electric Co., 98 Warren street, Newark, N. J.—This mica plug can be taken apart by unscrewing the collar from the shell and removing the core; the shell is of steel. The core is of India mica, wound on a taper steel pin. The core is forced under pressure into a threaded steel collar which sets into the shell with copper asbestos packing. The upper part of the

mica is protected by a porcelain insulator held in place by a nut and lock washer. Electrodes are of pure nickel. The Metz Special and heavy hex are the latest models. The Metz is ⅞ hex 18 with 1 in. extension. The heavy hex has a 1½-in. shell with standard S. A. E. ⅞-18 thread, 1 in. long, and has copper-asbestos gasket; all types and sizes, \$1.

Miller—Charles E. Miller, 97 Reade street, New York.—A porcelain insulated plug with a high shell to protect the projecting core, downwardly sloping oil-shedding nickel alloy heavy shell electrodes fastened into shell at both ends. large bushing and copper-asbestos gaskets to permit expansion and prevent leakage. Made in ½-in., ⅞-in., ⅞-in. long, and metric; all sizes, \$1; dealers, 45 cents.

Ezekleen and Manufacturers' Special—Perpetual Spark Plug Co., 330 East Drinker street, Dunmore, Pa.—This plug has a porcelain which extends below the shell, the projecting end becoming so hot as to burn off oil. The porcelain is molded to the interior of the shell and the compression joint eliminates the necessity of the bushing nut. Insulation is of kaolin and shells of steel. Two models are made, the Ezekleen and the Manufacturers' Special. The Manufacturers' Special is built on the same principle as the Ezekleen but the construction is less expensive. Both are made in ½-in. standard and ⅞ x 18, S. A. E. sizes only. Ezekleen, \$1; Manufacturers' Special, 60 cents.

Answer—Hill Mfg. Co., 105 West 38th street, New York.—This spark plug has a cast-iron shell and the interior is lined with mica throughout; above the shell the mica is continued upward in a short cone. Neither gaskets nor cement are used in the plug, the insulation being pressed into place under heavy pressure.



Of the making of plugs there is no end and it follows that there is no end to their sales

Cast iron is used for the shell because it has the same co-efficient of expansion as the iron of the cylinder. The single shell electrode and the central point are of meteor wire, the terminal cap is made for snap-on terminals, \$1; dealers, lots of 27 (1 carton), 40 cents each.

Radium—W. S. Porter & Co., 603 South Dearborn street, Chicago.—This is a porcelain insulated plug and all except the Ford model have the end of the central electrode in the form of a button. The porcelain is held in place by a split spring sleeve which allows for contraction and expansion. The four point plug has four shell electrodes converging towards the central button and is made in ½-in. standards, ¾ S. A. E., metric and motorcycle sizes at \$1.25. The regular type has the central button in the center of an opening in the end of the shell; made in ½-in. standard, S. A. E. and metric sizes; \$1. The Ford Special has a plain center electrode and two shell points; 75 cents.

V-Ray—The V-Ray Co., Marshalltown, Ia.—Both porcelain and mica plugs are manufactured; the porcelain is of a new composition called petrifint, which is of unusual hardness. Electrodes are of violet ray wire, which is controlled by the V-Ray Co. A special Ford model is made having one central and four shell electrodes the same as the regular models. All sizes, \$1; mica, \$1.25.

Wright—N. Y. Mica & Mfg. Co., Auburn, N. Y.—The automatic cleaning plug is made with mica insulation and an unusually large compression chamber in which is a brass bushing with small holes through which the gases are forced, keeping the carbon swept off the end of the shell and the points. The upper part of the insulating core is of black mica washers and the lower part a mica tube rolled under pressure. Points are of platinum alloy wire; \$1.25. Another mica plug, which also has a very large chamber in the end of the shell has an insulating core consisting of a tapered mica tube pressed into a brass bushing; the center pin of tapered construction is pressed through the center of the tube, the top of the pin and tube covered with mica washers and the whole pressed together; \$1. This plug is made in all standard sizes. A closed end mica plug also is made at the same price.

Eklips—The Fulton Co., 726 National avenue, Milwaukee.—The Eklips is a porcelain insulated plug with a heavy shell and knurled packing nut. The sparking points, of which there are three, extend from the shell towards the center and have their ends bent slightly upward, forming elbows from which oil accumulations drip. The center electrode is heavy wire. The porcelain core does

Simplified System

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not touch the steel shell at any point, separation being maintained by the copper-asbestos packing. A new Eklips model is the Giant, which differs from the regular plug only in that it is larger and heavier and it is designed for exceptionally severe service. A mica plug is also manufactured in which compressed washers of mica are reinforced by strips wrapped around the center stem. All are nickel plated and polished throughout. All models, \$1.

No-Check-Nut—Western Electric Co., 463 West street, New York.—In this plug the usual packing nut is eliminated, the steel shell and the porcelain being formed into a compact unit. The porcelain is of imported kaolin, the shell of steel and the points of meteor wire. All standard sizes are supplied and either one or two sparking points may be had.

Bergie—Bergie National Spark Plug Co., Rockford, Ill.—This plug has been redesigned and is now of one-piece construction, and has been made heavier; the insulation is porcelain and is held in the shell by turning over the upper edge of the metal; gaskets between the shoulders of the porcelain and the shell act as packing and cushioning. There are three electrodes, two shell electrodes, staple shape, and between them the central electrode, the lower part of which is parallel to the lower part of the shell electrodes. This arrangement provides 1 lineal inch of sparking service; all sizes and styles, \$1.

Vital—Bigsby-Rotary Mfg. Co., 7500 Quincy avenue, Cleveland.—These plugs are the demountable, easily cleaned type. All insulation is porcelain and shells are steel milled from the solid bar. Packings are copper asbestos and sparking points, both side and center, nickel. The Big Vital heavy duty plug has a large firing chamber and two shell electrodes; all sizes, \$1. Leader is made in special models, for cars requiring special plugs; all sizes, \$1. Vital priming plug is made in ¾ and ½-in. and metric; one model has a handle working in a vertical plane, while the handle of the other works horizontally. Vital spiral plug for motors having thick walls or deep water jackets has a projecting central electrode and a spiral shell electrode which may be adjusted by pushing it up to the desired height and cutting off the central electrode. All sizes, \$1. Priming plug, \$1.25.

Herz—Herz & Co., 245 West 55th street, New York.—This plug is made

with a double stone insulation, the inner member of the core being ground gas-tight into the steel shell. The shell electrode is of clover-leaf form and is rolled into the rim of the shell; the central electrode is a round rod. No packing is required owing to the grinding in of the artificial stone core. In addition to the foregoing features, the Bougie Mercedes has a mica cartridge in the center of the inner stone core; this model is made in ¾ and ½-in. only. The Ford Pro-Mo-Tor, a special Ford plug, has triple insulation, the stone core, mica cartridge and hood. The hood clamps down over the wire terminal and protects it. Bougie Mercedes, \$1.50 each; Ford Pro-Mo-Tor, \$1.

Day—George F. Day, 21 Haverhill street, Boston.—The upper part of this plug is enclosed in a polished brass case with an opening at one side for the cable and a removable top which gives access to the binding nut. The core is of mica and the points of meteor wire. No packing is used, \$1.50; extra cores, 50 cents; dealers, 25 per cent.

Ideal—Ideal Switch Co., Inc., Plainville, Conn.—The Ideal closed end plug is constructed to prevent the oil from working into the case; the spark points are so bent that an excess of oil runs away from the ends. Insulation is porcelain and shells steel. Two styles are made, the Snappy Spark, 50 cents; dealers, 25 cents, and the Ideal, 75 cents; dealers, 30 cents.

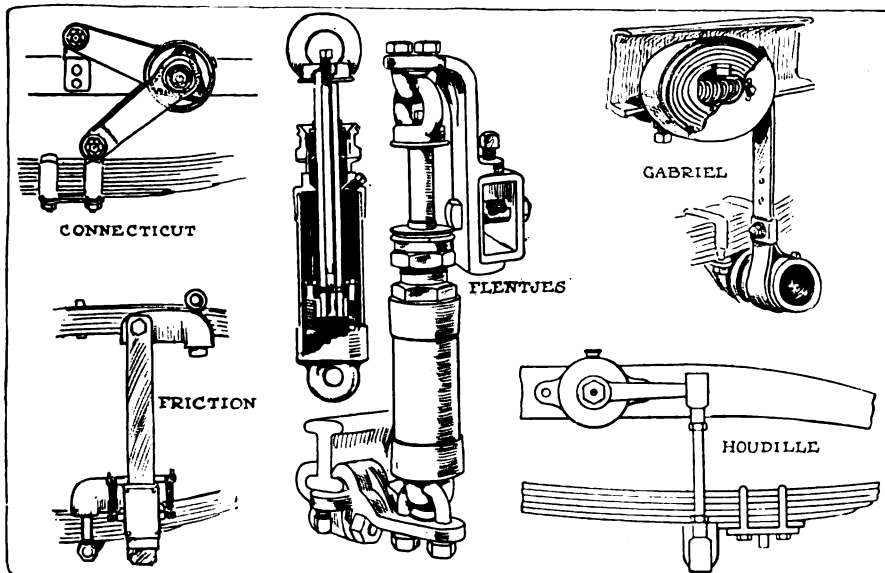
Axwell—Axwell Equipment Co., Pittsburgh.—This plug is of conventional construction and has a single sharp elbowed shell electrode; made in all sizes and threads, 75 cents.

Atlas Specialty Mfg. Co., Chicago.—These spark plug cases are of enameled duck and hold four plugs in separate compartments; 19 cents.

Anti-rattlers

O'Brien—O'Brien Mfg. Co., New York.—These are made in two pieces, one part fastening to the door and the other to the casing. A wedge on one is driven in between two solid rubber disks and thus the door is kept from rattling; \$1 in brass and \$1.20 in nickel.

C. B.—Wm. J. Bailey Co., Newark, N. J.—This is a flat spring arched so that the top of it presses out against the door and thus keeps it from rattling. This spring is attached to a sheet metal piece which is screwed to the door frame; 25 cents.



Shock absorbers damp out excessive spring oscillation and prevent the violent rebound which would ordinarily occur on rough roads

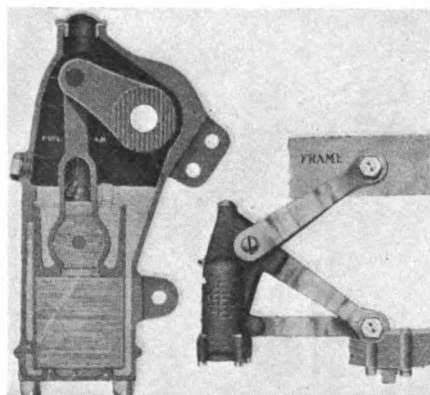
Shock Absorbers

Hartford—Hartford Suspension Co., Jersey City, N. J.—These shock absorbers are of the scissors type, with friction disks at the joint, and are made in six models, differing only in detail. One of the arms is double and the other works on a line passing between the two members of the double arm so that there is no offset pressure. Friction can be adjusted by means of an outside nut with a pointer working over a numbered dial. Heavy car type for cars over 4,000 lbs., 3 deg. automatic, set of four, \$60. Average car type, for cars over 3,000 lbs., set of four, \$50. Medium car type, for cars over 2,000 lbs., set of four, \$40. Light car type, for cars not over 2,000 lbs., set of four, \$25. Ford set, three absorbers, two for the rear and one for the front, \$16. Each set includes all necessary bolts, spring washers and special fittings and blueprint showing method of application.

Gabriel—Gabriel Mfg. Co., Cleveland.—The Gabriel Rebound Snubber will be made in three sizes for 1916 for pleasure cars, and one size for trucks. This device is mounted on the frame, a strap running to the axle and rebound is reduced by resistance offered by the strap which loosens as the spring is deflected. An improvement is the use of a new style of strap which eliminates the need for holes. Another feature is the use of a bracket for fastening the belt to the axle and which permits the bracket being adjusted to fit any type of I beam. The new belt also has greater strength. Cars less than 2,200 lbs., \$7.50 per pair; cars 2,200 to 3,500, \$10 per pair; over

3,500 lbs., \$12.50 per pair; trucks 2 to 5 ton, \$15 per pair. A set of four costs double the price of a pair.

Flentje—Ernst Flentje, Cambridge, Mass.—Air and oil is used as an absorbing medium in this device, which is attached to the axle and frame member. Two models are made, one for cars over 2,500 lbs. and another for cars less than this weight. The hydraulic cylinder and piston principle is employed. The cylinder contains oil, which is permitted to pass through small holes in the piston, these holes being controlled by an automatic valve. The cylinder is not entirely filled with oil, there being an air space to permit a certain amount of movement regardless of the passage of oil through the piston. The valve is adjustable by a rod extending upward through the hollow piston rod; this adjustment is made to suit the car. The piston rod is case



The Landis shock absorber is a hydraulic type with an ingenious lever arrangement

hardened and the valve seat plate is of copper resting on a sheet of spring bronze. The stuffing box through which the piston rod passes is double packed.

Friction—Friction Shock Absorber Co., 82 Prince street, Kingston, N. Y.—This is a friction device, a bar attached to the body of the car or the upper part of the leaf spring extending downward through a spring controlled friction brake on the axle or the lower part of the spring. On the downward movement of the car body the bar moves through the brake almost without friction, but on the upward movement leather covered pads are pressed by coil springs against the bar, checking the upward throw. For large and medium cars, nickel finish, \$40 per set of four; \$20 per pair; cars under 2,500 lbs., \$25 and \$13. For Fords, \$16 and \$8.50.

Connecticut—Connecticut Shock Absorber Co., Inc., Meriden, Conn.—These are of the scissors type, and resistance is due to the action of a three-faced cam mounted on one arm between three steel springs, corresponding with the cam faces, carried by the other arm. Relative movement of the arms causes the cam to expand the springs. An outside adjustment permits adjustment to the weight of the car. Springs and cams are packed in graphite grease. Set of four with fittings for standard car, \$50; without fittings, \$40. Set of two with fittings, \$25; two without fittings, \$20. Light car type, set of four with fittings, \$30; four without fittings, \$20. Two with fittings, \$15; without fittings, \$10. Special Fords, set of three with fittings, enameled black, \$15. Two absorbers are used at the rear and one at the front.

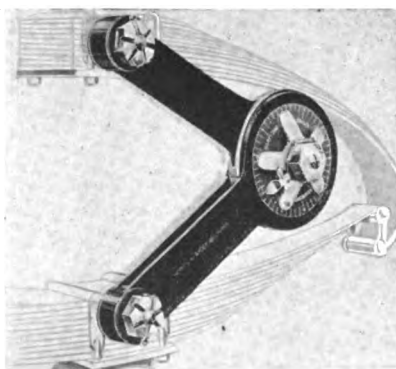
Westinghouse — Westinghouse Air Spring Co., Smedley building No. 3, New Haven, Conn.—The Westinghouse air spring is a pneumatic device with a telescoping cylinder mounted between spring and spring horn; the outer section, at the top, is carried by the frame bracket and the lower section is pivoted to the leaf spring. The chamber is partly filled with oil, which not only acts as a lubricant but also seals the telescoping joint. The filling plug at the top permits replenishing the oil supply from time to time and there is also an air valve by means of which the chamber may be filled with air at any desired pressure by means of a tire pump. A small interior oil pump is operated automatically by the up-and-down movement of the absorber, returning to the air chamber the small quantity of oil which works past the packing. The by-pass valve is restricted in its action by an oil governing device preventing rebound. When applying Westinghouse air springs to the rear of a car with three-quarter elliptic springs, the quarter elliptic member is replaced by

the bracket carrying the air spring. Per set of four, \$250.

Kilgore—Kilgore Mfg. Co., Boston.—This is a pneumatic type in which the excessive action of the springs is damped by the motion of a piston in a cylinder. The end of the piston rod is connected to the frame and the cylinder to the axle, the two being flexibly mounted. With a downward movement of the car the air in the lower chamber is compressed and forced through a by-pass into the upper chamber; on the rebound this action is reversed. Per set of four: cars under 3,000 lbs., \$75; over 3,000 lbs., \$95; special type for light roadsters and limousines, \$85.

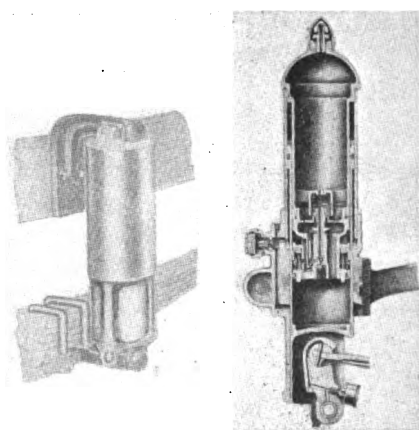
Naco—National Appliance Co., Grinnell, Ia.—This is a friction shock absorber, the upper part consisting of a vertical rod carrying the plunger and the lower part of a cylinder in which the plunger works. By means of jointed arms, connecting the upper and lower parts, the plunger is caused to expand upon violent spring movement and so check rebound by increasing the friction. Recent improvements include the use of ball and socket attaching brackets and plungers of bronze. For cars from 2,400 to 4,000 lbs., \$36 per set of four; for cars under 2,400 lbs., \$30 per set; rear pair, half price. Ford set of three, \$18.

Landis—Landis Eng. & Mfg. Co., Waynesboro, Pa.—Shock diffusers are of the pneumatic-hydraulic type; there is one model for all sizes of cars. The device consists of a casing two-thirds filled with oil, a movable cylinder and a piston which also acts as a valve in the top of the cylinder. The cylinder is clamped to the axle and the piston crank to the frame. When the springs are compressed the valves in the mechanism open wide and on rebound they close and the pressure of the oil flowing through by-passes retards the motion. A compressed air chamber in the top of the cylinder gives the pneumatic effect. Price, four, \$60; pair, \$35. Dealers, less than five sets, 20 and 5 off; larger quantities, 30 and 5.



Hartford scissors type friction shock absorber which controls spring action

Houdaille—Clodio & Engs, distributor, Circle building, New York.—This is a hydraulic type in which a vane operating in a chamber of castor oil supplies the resistance to shock and rebound. The vane housing may be attached to frame or axle, as desired. Only one model is



Left, Kilgore air shock absorber. Right, Westinghouse pneumatic

made for all sizes of cars, but there is an adjustment which allows the best action for any particular car to be secured. Price, \$90 per set of four with fittings; dealers, 33 1/3 per cent.

Supplementary Springs

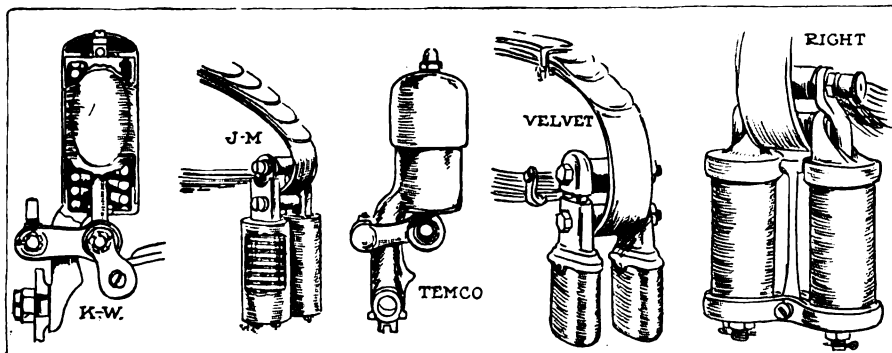
C-C—Cox Brass Mfg. Co., Albany, N. Y.—Heavy car and Ford types are made the former having three and the latter two nested helical springs. The heavy type has been considerably improved. Head and cylinder are in one, bearings are machine fits, piston and slide bearings are fitted with fiber to eliminate noise, and the length increased to 5 1/2 in. The piston is 2 x 3/4 in. Fittings are provided for springs 1 3/4, 2, 2 1/4 and 2 1/2 in. wide and with shackle bolts of various sizes, so that any car can be properly fitted. A series of five springs permits combinations that will suit any car within the normal range. Bolts are fitted with grease cups. The springs are adjustable, a nut at the bottom being accessible for the purpose. Per pair, \$10. Ford type, double helical springs, adjustable, one-piece casing, set of four, \$8; per pair, \$4.50.

Velvet—John W. Blackledge Mfg. Co., Chicago.—This type replaces the spring

shackle and consists of a pair of flat steel housings in each of which are four coiled springs, each pair of which is concentric. A new model for 1916 is for light cars; it is patterned after the heavy car model and sells for \$25. Two types are made for Fords, one for runabout and one for touring car, listing at \$15 per set of four. The light car shock absorber selling for \$25 is made in three sizes: for cars weighing 1,800 to 2,200 lbs., cars weighing 2,200 to 2,800 lbs., cars weighing 2,800 to 3,400 lbs. The heavy car type is made in four models, all of which sell for \$35. For cars weighing from 3,500 to 4,200, for cars weighing 4,200 to 4,800, 4,800 to 5,500; ambulances, hearses, etc., weighing 6,000 lbs. or more. Discount, 25 per cent.

Johnson—Triple Action Spring Co., 55 East 28th street, Chicago.—Coil spring type supplementary spring with nested springs; outer springs in latest models are of the compression type and a steel stirrup spring hanger is used, the cup passing through the bottom of the stirrup hanger. A wide range of action is permitted by the new design. A small inner coil check rebounds. A weather-proof top cap has been added and self locking adjusting bolt. Pleasure car types, \$22.50 and \$20; truck type, \$40.

Acme—Acme Torsion Spring Co., 998 Boylston street, Boston.—Heavy torsion springs of steel wire are interposed between the ends of the leaf springs and the hangers in the case of semi-elliptics and between the upper and lower members in the case of three-quarter elliptics



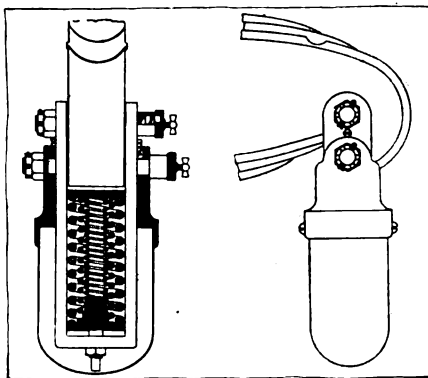
Supplementary springs absorb the small vibration not taken up by the regular springs and also assist in damping out excessive oscillation

or full elliptics. Ford equipment, front or rear, \$7.50; front and rear, \$15. For other cars under 2,500 lb., rear sets, \$12.50; over 2,500 lb., \$15. Dealers, less than 1 doz. sets, 25 per cent; 1 doz. sets or over, 40 per cent.

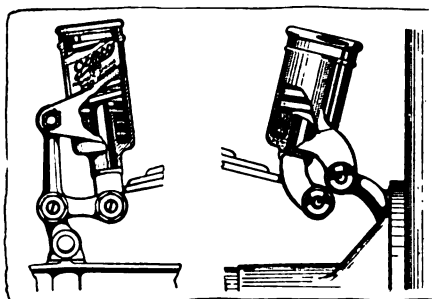
Temco—The Temco Electric Motor Co., Leipsic, O.—A special supplementary spring for Fords has single springs of unusual length, the length being permitted because the casing telescopes, decreasing its height when the car body descends. Motion is always vertical radius links preventing tipping or side motion. Per set of four, \$15. The Temco-Alta consists of a pair of coil flat springs attached to the leaf springs of the car in the usual way. These are designed for application to almost any car. Set of two with bolts and washers complete, \$12.

Sager—J. H. Sager Co., Rochester, N. Y.—Four models are built in addition to the equalizing spring, two for Fords and two for other cars. No changes made for 1916. The J. H. S., for larger cars, is a dual model in which a pair of coil springs suitably encased go to form a unit which is interposed between the leaves of the rear springs. Price, \$25 per pair. Another dual type for lighter cars and somewhat different in design sells for \$10 per pair. The Sager-Ford has a single helical spring, encased. Price, \$8 per set of four, \$5 per pair. The J. H. S. Ford type sells for \$8 per pair and \$15 per set of four.

Hartford—Hartford Suspension Co., Jersey City, N. J.—The Hartford cushion spring consists of two spiral springs, one within the other, applied to the rear springs of the car; the coil springs are enclosed. Four models are: No. 1 for cars over 3,000 lbs., \$25 per pair; No. 2, 2,400 to 3,000 lbs., \$22.50 per pair; No.



Cox supplementary springs



Gemco springs for Fords

3, up to 2,400 lbs., \$20 per pair; Ford set consisting of two cushion springs for the rear and one friction type Hartford shock absorber for the front, \$12.

Gemco—Gemco Mfg. Co., Milwaukee.—Supplementary springs in two types are made for Fords. The pneumatic type is provided with a piston so that the movement of the car's spring is cushioned by the air as well as by the springs. Side links have been fitted to the front shock absorbers to prevent side sway. Per set of four, \$13.75; per pair, \$7.20. Economy shock absorbers are supplementary springs, similar in design, but without the pneumatic feature. The

spring chamber is water-tight. Per set of four, \$8.75.

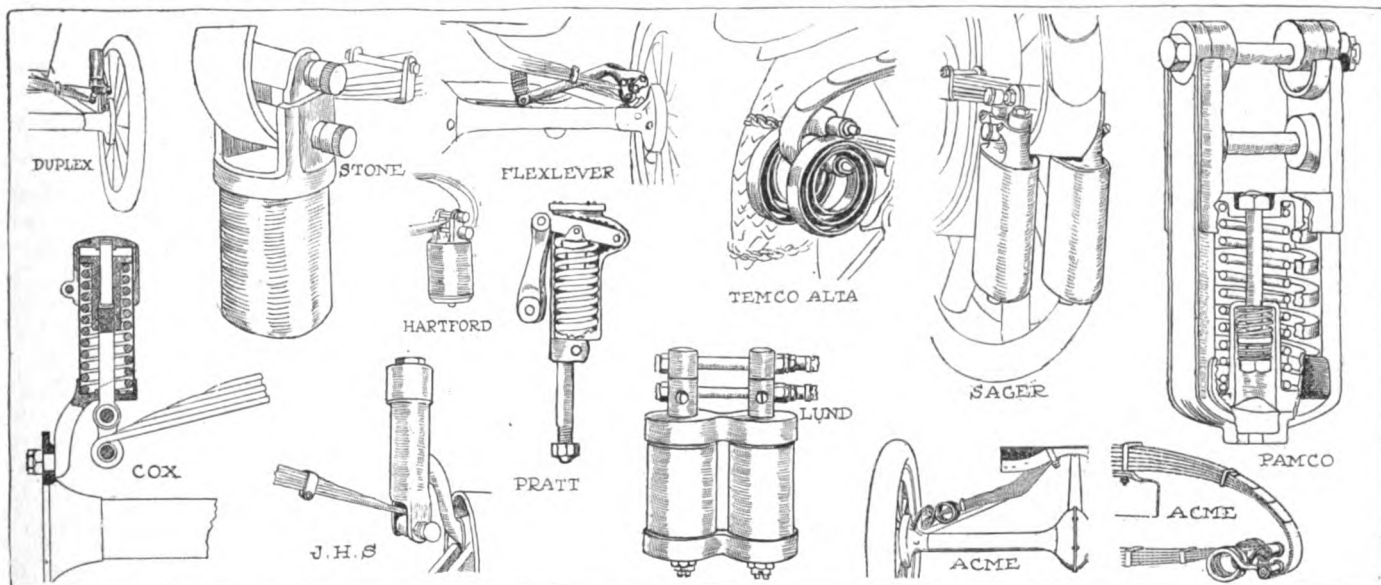
Lund—H. Lund Smith, 199 Paterson street, Paterson, N. J.—This supplementary spring has two coil springs enclosed in two parallel cylinders and attaches to the springs of the car by shackle bolts with 1-in. manganese bronze bearings; bolts are fitted with grease cups. The plunger rod is steel, $\frac{3}{8}$ -in. diameter. Springs are made in a wide range of capacities and are selected to suit weight of car. For any weight of car, \$25 per set.

Wm. E. Pratt Mfg. Co., 35 West Lake street, Chicago.—This supplementary spring for Fords applies pressure to the spring through a lever instead of a direct plunger. Spring lever and pivots are enclosed in a steel housing; spring is of rectangular cross section and is packed in grease. Set of four, \$15; dealers, \$6.50.

K-W Road Smoothers—K-W Ignition Co., Cleveland—Supplementary springs, for replacing the spring shackles are supplied for Fords. Vanadium steel springs are used, and the working parts are suitably enclosed. Per set of four, \$15.

Stone—Universal Rim Co., Chicago—A double concentric spring enclosed in a cylindrical shell is used. The device takes the place of the rear spring shackle. The 1916 type has been improved considerably by using a double coil spring and double bearings for the moving parts. Price, \$10 per pair; dealers, 50 per cent.

Pamco—Auto Devices Co., 3027 Locust street, St. Louis—Spiral spring type having quadruple nested springs of vanadium steel with equalizing device. Price, \$15



More supplementary springs of widely differing types, some particularly for Fords and others produced in a number of different models for various makes of cars

per set; dealers, single sets, \$11; lots of 6 sets, \$10; 12 sets, \$9.

Right—Right Motor Specialties Co., 1322 Michigan avenue, Chicago—Twin cylinder type with coil springs of flat steel. The shells are upset at the upper ends and heads are held in by pressure of the springs; can be taken apart without removing from car. Plunger rod bearing has been lengthened to 3 in. and soft felt washer placed between piston head and cylinder walls to exclude dust and eliminate noise and rattle. Price, \$15 per pair.

Duplex—Peerless Motor Specialty Co., New York—This is for Fords only and is attached between spring and axle. Two single coil springs arranged in tandem are used and they are enclosed in a cylindrical steel case. The top spring is for light and medium loads and the bottom one for heavy loads. Price, per set of four, \$10.

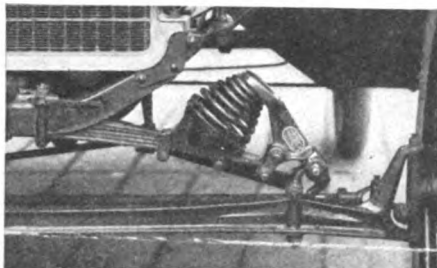
Flexlevers—L. P. Halladay Co., Streator, Ill.—For Ford front and rear springs. Levers are attached between ends of springs and spring brackets and extend toward the center of the axle; inner ends of levers move against coil springs and prevent side sway. Price, set of four, \$10; front or rear pair, \$6. Type 4, single-cylinder spiral spring type with grease cups fitted to spring bolts, \$9 per set of 2.

Johns-Manville—H. W. Johns-Manville Co., New York—This is a spring device, in a cylindrical housing, attached to the spring ends. A telescopic volute spring is used in which the greater part of the road vibration is annulled by the larger convolutions, but as the road grows rougher the smaller and stiffer coils are called into play. Suitable for springs up to 2½ in. For narrower springs spacer washers are used. Shackle bolts are ½ in. in diameter and when spring holes are larger they must be supplied with sleeve bushings. Price, \$15; dealers, 33⅓ per cent.

Hassler—Robert H. Hassler, Indianapolis—This spring for Fords is made in one size but springs of various weights can be used. The shock absorbing spring is mounted at an angle near the end of the leaf spring; a lever with two lugs, one attached to the end of the leaf spring and the other to the leaf spring support on the axle housing, has its end bearing on the top of the coiled spring. Downward motion of the car body causes a corresponding downward motion of the lever against the coiled spring. An extension of the lever engages with the axle in case of a violent rebound and causes compression of the coiled spring in this case also and lessens the risk of spring breakage. Set of four, \$15.

Heaters

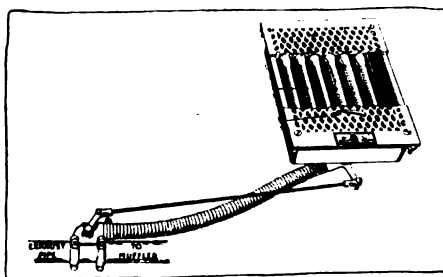
Perfection—Perfection Spring Service Co., Cleveland—An exhaust heater made in two models, one a floor register and the other a radiator. About one-eighth of the exhaust heat is deflected through a flexible pipe which carries it to the coils in the heater, the heat being con-



Hassler spring for Fords



Johns-Manville volute type



Perfection car heater

trolled by a valve. Two or three hours are required for installation. The valve is clamped over a V-hole cut in the exhaust pipe. \$25; Ford type, \$15. Dealers, ten heaters or less, 20 per cent, with a sliding increase which amounts to 25 per cent for 101 heaters.

Dunco—Dunkirk Corp., Dunkirk, N. Y.—Hot air is supplied to the car through a floor register, the air being heated in a jacket outside of the muffler which takes the place of the regular muffler. The muffler is an ejector type and the jacket which surrounds it has no connection with it. Cold air is taken in at one end

of the jacket ad passes out to the register at the other. The amount of air flowing through the heater depends on the speed of the car, since the cold air opening is at the forward end. \$20; Ford type, \$15. Dealers, 25 per cent; six or more, 30 per cent.

Warm Hand Wheel—Warm Hand Steering Wheel Corp., Poughkeepsie, N. Y.—This wheel replaces the regular wheel and warms the hands by having a heating coil in a segment of the rim at each side. The coils are concealed and the wheel may be used the year round. Two models are made, one with four ordinary spokes, \$15, and the other a tilting type, which makes it easier for the driver to get in or out, \$20. The heating switch is situated on the wheel. Any ordinary current source may be used to supply the energy and the amount required is very small. The feature of the 1916 model is that the wires running from the battery to the wheel are concealed in the steering column, this being possible by having a ring and a brush at the column top to allow for the rotation of the wheel. The rims are made of condensite, which is the material ordinarily used for steering wheel rims, and the spiders are cast aluminum. In attaching the wheel no fitting is required, as special models are made for each make of car.

Ottoby—Ottoby Motor Car Co., St. Louis—A sheet steel pipe is fastened around the exhaust pipe on the motor; air enters the front of the pipe, which is flared, and passes back where it is heated, and then to outlet registers in the floor boards of the front compartment and tonneau. Ford roadster, \$5, touring car, \$7.50; any other roadster, \$10, touring car, \$15. Dealers, 33⅓ per cent.

Steer Warms—Interstate Electric Co., New Orleans, La.—There are two leather-covered grips which are laced to the rim of the steering wheel. Each grip contains a coil of heating wire. Energy may be supplied by any 6-volt source of current. For Fords, \$5; other cars, \$7.50. Dealers, 25 per cent.

Konsrv—Konsrv Electric Co., Cleveland—Three types of electrical heaters are made, a foot warmer, radiator warmer, and heated steering wheel. The foot warmer may be had as a foot rest in several shapes. Voltages, 6, 12, 18, 24, 30, 60 and 80. 14 in., \$5; 22 in., \$5; 34 in., \$6.50. The steering wheel takes the place of the regular wheel. It has coils of resistance wire in the rim. Current consumption amounts to 4 amps. with 6 volts; \$5. The radiator heaters are for use when the car is standing in the cold. One is for garage use only and is wired for 110 volts, \$5, and the other is for both garage and street use, being wired for both 6 and 110 volts, \$7.50.

Goggles

Stoco—Standard Optical Co., Geneva, N. Y.—About 100 different styles are manufactured at prices from 10 cents to \$6 per pair. A new model is the side pad goggle, which has a flexible center piece, minimizing danger of breakage, and side pads fitting each side of the nose. The center piece is of gold filled spring stock. It is adjustable for distance. Temples are gold filled and covered with sanitary fabric, preventing cutting behind the ears. Lenses are curved and are furnished in assorted shades of amber or in two colors. Dealers, regular lenses, \$40 per dozen; with two-color lenses, \$45 per dozen. Imoshell goggles with imitation shell rims, black, amber or shell color, \$8.45 ad \$10.70 per dozen with drop-shaped lenses; round lenses \$7.90 and \$10.15 per dozen.

Zylbex—T. A. Willson & Co., Inc., Reading, Pa.—Zylbex self-adjusting goggles have a silk bridge. Frames are of zylonite. Lenses are in amber, feuзал, amethyst, smoke or white, and sides are of leather with cable temples. \$2 per pair; dealers, \$12 per dozen. Each pair in steel case, leather covered and plush lined. Keystone side-shield goggle, shell-framed, dust-proof metal joint, mi-coquille lenses in amber, feuзал, amethyst, smoke or white; \$1 per pair; dealers, \$6 per dozen. Albex eye protector, adjustable bridge, leather sides, mi-coquille lenses and cable temples, \$1 per pair; dealers, \$6.75 per dozen. Other styles range from 25 cents to \$2 each.

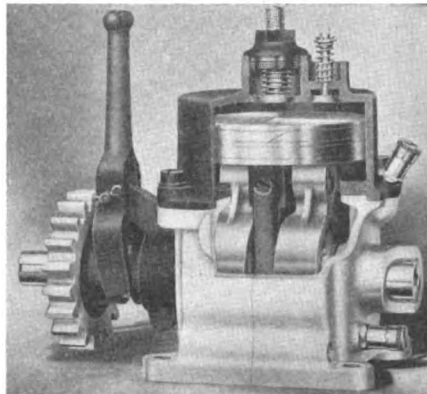
Autoglas—F. A. Hardy & Co., 10 South Wabash avenue, Chicago.—These goggles have a hinged bridge and the lenses extend to meet the center piece and no gap is left, the goggle being all glass except the metal connection. Four sizes are made, two medium and two large. With case, \$5; with special lenses up to \$13; dealers, single lots, 20 and 6 per cent; lots of six or more, 20, 10 and 6 per cent. Rims are supplied on special order.

Max G. Cohn & Co., 19 Madison avenue, New York.—All the goggles in this line have zylonite frames. Turtle brand, No. 415, 1 7/8 in. round lens, \$5 per dozen; \$45 per gross; with 2-in. lens, \$6.50 per dozen; \$54 per gross; with 2 1/4-in. lens, \$7.50 per dozen; \$66 per gross; with folding side shields of zylonite, 2-in. round lenses, \$6 per dozen; \$51 per gross. This model is also made in a special size for ladies at the same price. Each goggle packed in an individual telescope box. Peerless with adjustable zylonite temples, 1 7/8 round lens, \$7.50 per dozen; \$66 per gross; with 2-in. lens,

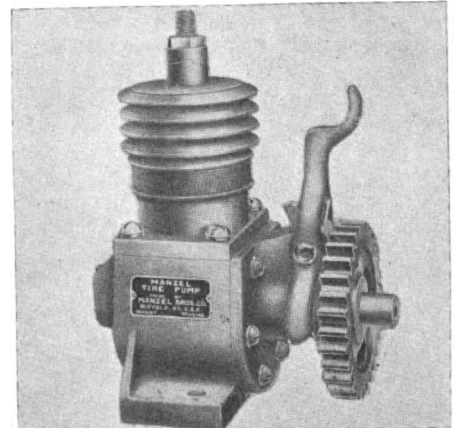
\$8 per dozen; \$72 per gross; with zylonite folding shields, 2-in. round lens, \$8 per dozen; \$72 per gross. Each goggle packed in metal spring box. The Tourist, adjustable zylonite temple, can be bent to any shape, straight bridge, can be worn over ordinary eye glasses, 2 1/4-in. round lens, \$12 per dozen; \$96 per gross. Packed in individual pocket case. The Aristocrat, with arched bridge, adjustable zylonite temples, 2 1/4-in. round lens, \$12 per dozen; \$96 per gross. Packed in individual pocket case. The Elite, square eyes, hinged bridge, adjustable telescoping temples, lenses 3 x 1 7/8, \$12 per dozen;

\$96 per gross. These goggles fold into a small pocket case.

Allwon—Strauss & Buegeleisen, 489 Fifth avenue, New York.—These goggles are of micalite, which is non-inflammable. The Allwon is in one piece, the upper part darker color than the lower. Two styles are made, dark amber top with clear lower part and dark amber top with light amber lower part. \$1. Imitation shell goggles with glass lenses are in a wide range of size at from \$5 to \$18 per dozen.



Kellogg two-cam pump



Single cylinder Manzel

Engine Driven Pumps

Manzel—Manzel Bros. Co., 309 Babcock street, Buffalo.—There are three models of engine driven pumps; a two-cylinder, a single-cylinder standard and a single-cylinder Ford; the single-cylinder standard is new, with vertical cylinder flanged for air cooling, cast iron piston with a steel ring, bronze connecting rod, drop forged crankshaft, running in inserted bushings and steel driving gear and shifter. The air intake is cut in the cylinder wall and is uncovered by the piston; a screen excludes dust and dirt. The outlet valve in the cylinder head is a spring seated ball. Cylinder, 1 3/4 in. bore and 1 1/2 in. stroke. Lubrication is by graphite grease in pump base, there being no oil. Fifteen feet air hose, pressure gauge and cooling coil are included with the outfit; for Buick, Overland, 1916 Dodge and 4-90 Chevrolet, \$10; other cars, \$12. The single-cylinder Ford model, with vertical flanged cast iron cylinder, gear driven from the front of the engine, is unchanged; all parts are metal. A combination steel gear and lower fan pulley, split, take the place of the regular Ford fan pulley and are included in the pump outfit. The makers state that a Ford tire can be inflated in 2 min. With gears, hose and gauge. \$7.50. The two-cylinder pump, the oldest of the three, also is unchanged. The

cylinders are cast together, with air-cooling flanges and air intakes in the cylinder walls uncovered by the piston and are mounted vertically on the cast iron crankcase. Bore, 1 3/8 in.; stroke, 1 1/2 in. Construction, generally, is the same as that of the standard single-cylinder pump; the makers state that it will inflate a 4 1/2 x 36 tire to 90 lbs. in about 2 min. when running at 600 r. p. m. With hose, gauge and fittings, \$15.

Kellogg—Kellogg Mfg. Co., Rochester, N. Y.—This is a single-cylinder vertical pump with gear drive from the camshaft; has large bore and short stroke. Two connecting rods actuated by eccentrics on the shaft reciprocate the piston, which is oiled by coming in contact with an oil-absorbing ring at the end of each down stroke. An outside oil cup is provided for replenishing the pad. The pump is all metal and the piston has two rings. Fittings are provided for all cars: time required for installation, 15 min. to 1 hr. The dog clutch is back of the pump-shaft pinion. All bearings are bab-bitt-lined. With fittings, \$15; Ford model, \$9.50.

Stewart—Stewart-Warner Speedometer Corp., Chicago.—A one-cylinder vertical air-cooled pump generally driven through



Johns-Manville single-cylinder pump

gear connection with the water pump or generator shaft. Intake is an annular port uncovered at the bottom of the stroke and exhaust valves are of the ball type, in series to give positive operation. The piston is oiled by rubbing against the annular felt pad, the crank-pin through a special oil hole and the main bearing through a ring oiler running in an oil well. The piston is fitted with one large ring and a unit of five small ones. A flanged base is used, having four holes for attaching the pump to the bracket to insure rigidity of support. The shifter arm is made a separate part, and can be set at any desirable angle. A brass coil connects the hose and the outlet valve, which acts as a cooler for the discharged air. This feature is a necessity when the pump gets hot due to neglect to lubricate it. Equipment is complete—bracket, gears, screws, nuts, gauge and 15 ft. of hose; \$15.

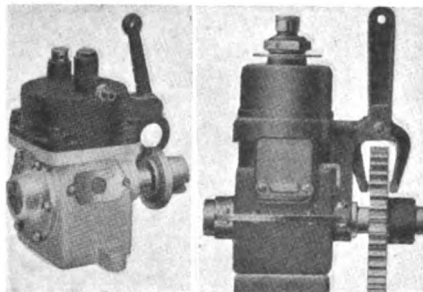
Detroit — Detroit Motor Accessories Co., Detroit.—A one-cylinder design which is attached to the front end of the crankshaft on cars not equipped with cranks. The pump is usually carried in the tool box and is attached to the crankshaft only when in use. It can be clamped in place in about 30 seconds. The end of the pin is slotted to engage the pin in the end of the motor crankshaft. The pump has a cast iron cylinder and piston with compression ring. Both the crankshaft and piston pin are hardened and ground steel. The intake valve is a poppet type while the discharge valve is a ball. Lubrication is supplied through a hollow crankshaft. The pump will fill a standard 34 x 4 tire to 80 lbs. pressure in 4 to 5 min. Adapted to the following cars: Chandler, Dodge, Hudson 6-40, Overland 83-84, Reo the Fifth, Studebaker and Saxon Six. \$8.75.

J-M—H. W. Johns-Manville Co., New York.—A one-cylinder design with cylinder piston and base made of gray iron. Bore and stroke, $2\frac{1}{4} \times \frac{7}{8}$ in. Complete with fittings and air hose, \$7.50. It may be installed on the following cars: Ford, Dodge, Overland 79, 80, 81, 83;

Studebaker 4 and 6, 1915; Reo 1912-1916; Buick, C24, 25, 26, 27, D45; Chevrolet 1914-1916; Hupmobiles K and H; Chandler 1914-1916. Dealers, 33 per cent.

Champion—D. L. Davis Mfg. Co., Chicago.—This is a double-acting pump of the diaphragm type, a central piston $3\frac{1}{8}$ in. in diameter operating the diaphragm on each end of it. The stroke is $9/16$ in. The diaphragms are made of fabric. The suction valves are centrally located, one at each end, and are of the poppet type. The discharge valves are of the ball type. The piston is driven by an eccentric which is fitted to a sliding block in the piston. This chamber is partly filled with grease so that the pump may be used for months without any attention. The diaphragms prevent any oil from getting to the tires. \$16.

Oakes Fan-Horn-Pump—Oakes Co., Indianapolis.—A single-cylinder air-cooled pump is combined with the fan-horn for Fords, the pump being driven



Kingston

Advance-Toledo

by the fan belt. The bore and stroke are $1\frac{1}{2} \times 1\frac{3}{4}$ in. Lubrication is by a wick oiler. The pump is driven from the fan shaft by a worm gear and when not in use it may be removed and carried in the tool box. With hose and gauge \$7.50.

Benn—Benn Pump Works, 3 Tremont Row, Boston.—This single-cylinder gear-driven pump has the crankshaft running in a single bearing of unusual length. A liner, bored for the piston, is inserted in the cylinder casting proper; it does not extend for the full length of the stroke, and just above it is a ring of absorbent asbestos which is charged with oil and keeps the piston lubricated, as well as preventing oil from getting into the air supply. The crankcase is a separate casting, the connecting rod of bronze, gears cut and other parts of malleable and cast iron and drop forgings. Clutch and lever are attached. Standard model, with hose, gauge and brackets, \$8; Ford model, \$7.

Utility—Hill Pump Valve Co., Chicago.—A spark plug pump which will inflate an ordinary 34 x 4 tire in 4 min. The automatic tire pressure gauge or Pneu-Meter is equipped with an outside whistle which can be heard over a block

away when the inflation pressure is reached. Complete with hose and Pneu-Meter, \$10; Utility Jr. for Fords, \$6.

Advance-Toledo—Advance Machinery Co., Toledo.—A single-cylinder vertical gear-driven pump with cylinder and crankcase of separate steel stampings; the cylinder is reamed and burnished and the cast iron piston is ground and has steel rings. Main bearings are of die-cast nickel babbitt and crankshaft of forged steel. Drive is through sliding gear, the gear being close to crankcase when taking drive to avoid overhang strains. Lubrication is by hard grease. Fittings are stocked for practically all cars. With fittings, \$15; jobbers, 50 per cent.

Kingston—Kokomo Electric Co., Kokomo, Ind.—Single-cylinder vertical gear-driven; cylinder and piston cast iron and crankcase cast aluminum; steel piston rings. Connecting rod is of bronze and is actuated by cam on machined steel shaft. Splash lubrication. Shaft is fitted with clutch, and hose, gauge and oil separator are supplied, but no fittings for attachment; \$10; dealers, \$7.50.

Mayo—Mayo Mfg. Co., 54 East 18th street, Chicago.—This spark-plug pump has a pair of pistons, one above the other, the lower actuated by the engine pressure and pushing the upper or pump-piston, which is smaller in order to obtain the requisite pressure for the tires. Only pure air is pumped. A special adapter is furnished to facilitate the use of the pump, having a spark plug designed for quick removal. Another adaptation of the pump permits its use over a valve port, in which case it is not necessary to remove it. Spark plug type, \$10; special spark plug and adapter, \$1.50; valve cap pump, \$15; Ford spark plug pump, \$8. All pumps fitted with gauge and hose.



Benn engine-driven pump

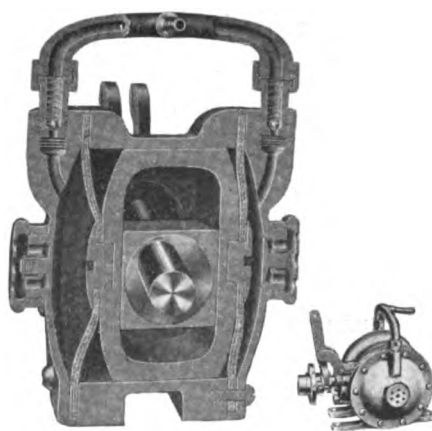
Tire Gauges

Utility Whistling Pneu-meter—Hill Pump Valve Co., 18 E. Kinzie street, Chicago—Designed to automatically indicate when the proper degree of inflation has been reached, the Pneu-meter is set for the pressure to which the tire should be pumped and the pump started. When the proper pressure is reached inflation is automatically stopped and the air all passes through a whistle and is exhausted, making a loud sound which can be heard above the noise of the motor. Price, \$2. May be used with any power pump and is furnished as part of the equipment of the Hill utility pump.

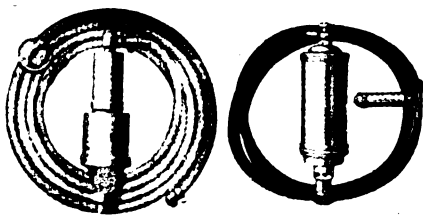
E. Edelmann & Co., Chicago—The Eclipse tire gauge is cylindrical, has no springs and is sealed at both ends. The indicator cylinder, which is marked with pressure figures, remains at the pressure point until reset by hand. Nickel in leather case, \$1. No. 2, pump gauge, dial type, 1½-in. diameter, ⅛-in. pipe thread connection on back, 150 lbs. capacity, standard; can be furnished in 60 lbs., 100 lbs. or 200 lbs., \$1. No. 3A, is a gauge of similar construction but with the connection at the bottom combined with tire testing connection of the slip-on type. This gauge can be used to indicate pressure while pumping or as a tester without the pump; \$1.50. No. 4, same type of body, has two connections for insertion in the air line; \$1. Gauge with shut-off connection, hose coupling and tire testing connection, \$2. No. 6 is similar to No. 3A, but has a screw connection to attach to the tire valve instead of a slip-on; \$1.75. Dealers, No. 3A, dozen lots, \$14; 100 lots, \$100. No. 5, dozen lots, \$16.80; 100 lots, \$1.25. No. 6, dozen lots, \$15; 100 lots, \$115.

Tyrometer—Allen Auto Specialty Co., 1926 Broadway, New York—This fountain-pen type gauge has a plunger which when forced upward by air pressure carries an indicator which stands at the point on the scale to which it is pushed until returned by hand to 0. The case is of drawn brass tubing 4½ in. long and is nickel plated. Recent improvements consist in making the plunger smooth instead of corrugated, lengthening the slot through which the indicator pin works and coloring the figures to make them stand out more clearly. Price, \$1; dealers, 75c.; dozen lots, 70c.

National—National Gauge & Equipment Co., La Crosse, Wis.—The National hose-line gauge is of the dial pattern with a T connection of bar steel for the hose so that it can be inserted by cutting the line. The same gauge is made



Champion diaphragm type pump

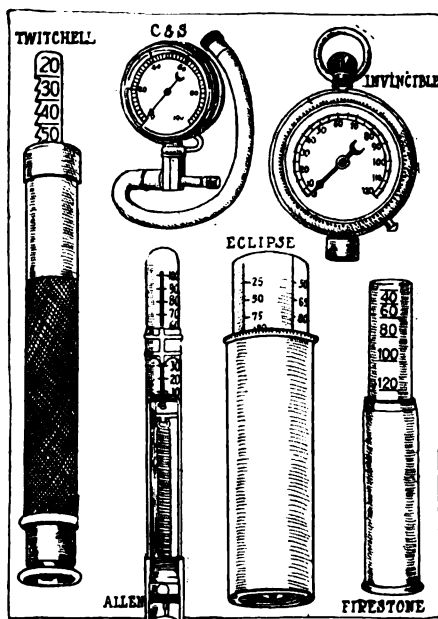


Mayo

Hill



Stewart single cylinder



Six types of tire gauges

with a safety valve which can be set to blow off at any desired pressure. A combination gauge has a slip-on attachment so that the pump hose may be attached and pressure watched while the pump is working. All three gauges have a spring stop to prevent damage to the spring under abnormal pressure. Line type, \$1; with safety valve, \$1.50; slip-on type, \$1.50. A dash board gauge is made at \$8.

National and Kellogg—Kellogg Mfg. Co., Rochester, N. Y.—These are dial type pressure gauges. Two models are made, each designed to be placed on the valve stem and a fitting on the gauge stem used for the attachment of the pump hose. This shows the pressure before, during and after inflation. Price, National, \$2.50; Kellogg, \$2. The two differ chiefly in the forms of the attaching fittings. In the National the fitting is attached to the back of the gauge at the middle and the air hose connection is through a bulb formed on the stem. The Kellogg has a straight stem entering at the bottom of the gauge with hose connection midway of its length. A combined gauge and air purifier for use with power-driven pumps also is made; price, \$2.50.

C. & S.—Codman & Shurtleff, 120 Boylston street, Boston—A dial type tire gauge reading up to 100 lbs., 2½ in. in diameter, with a spring clip for attachment to wheel spoke while tire is being pumped. Pressure is registered at each stroke. 2 ft. of rubber tubing, tire nipple and pump hose connection are included. \$5.

Twitchell—The Twitchell Gauge Co., 1200 Michigan avenue, Chicago—This pencil-type gauge has a tongue which is forced out when the gauge is applied to a tire valve and locks when the maximum pressure position is reached; figures on the tongue indicate the pressure in pounds. Ratchet teeth lock the tongue in position until purposely released. Pressure can be read in the dark by counting the notches. \$1; dealers, 72½ cents.

Invincible—United States Gauge Co., 67 Wall street, New York—A watch-shaped gauge with a seamless Bourdon tube. May be carried in the vest pocket. It has a wooden case and can be carried in the tool box. Price reduced from \$2 to \$1.25.

Firestone Tire & Rubber Co., Akron, O.—This tire pressure indicator is of the telescoping type, the inner cylinder sliding upward and having marked upon it the figures indicating pressure up to 120 lbs. Each gauge comes in a leather case with snap fastener, \$1.

Grease Guns

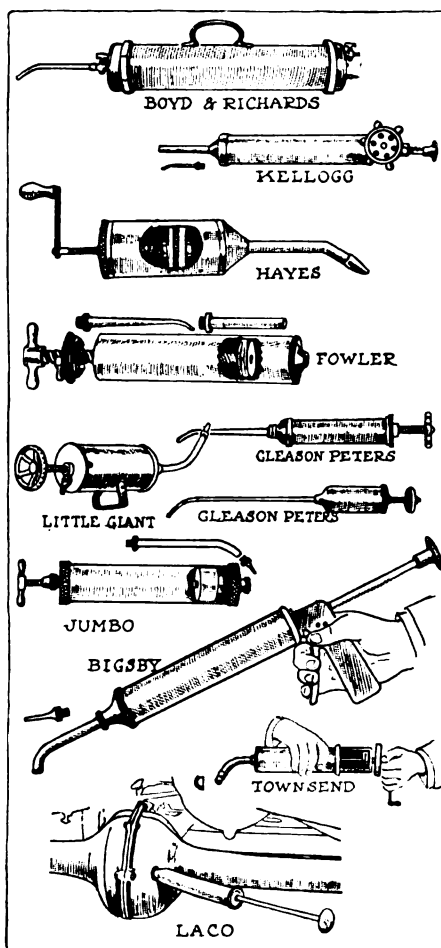
E. Edlmann & Co., Chicago.—No. 3, combination gun, 9 in. long, $1\frac{1}{4}$ in. diameter, straight plunger type, has the end tapered and threaded to fit Ford differential opening. Plunger is cork and will handle oil or grease, capacity 6 oz. Two small spouts are furnished, for oil and grease. Little Gem, screw type, barrel $7 \times 1\frac{3}{4}$ in., brass barrel, pressed cork plunger, capacity 8 oz., \$1; dealers, dozen lots, \$8; 100 lots, \$65. Jumbo combination, barrel $11 \times 2\frac{3}{4}$ in., screw plunger rod, with release for quick action, cork plunger, \$2; dealers, dozen lots, \$18; 100 lots, \$140. Giant grease gun, barrel $12\frac{1}{2} \times 3$ in., heavy brass, capacity $2\frac{1}{2}$ or 3 lbs. of grease, ratchet and lever action, in wood box, \$6.

Hayes—Hayes Grease Gun Co., 229 Mulberry street, Newark, N. J.—In this grease gun the plunger is forced down by a threaded rod actuated by hand crank and has a felt washer which permits the gun to operate even if the barrel is dented. The spout cap is conical to reduce the back pressure of grease. The cap at the handle end is removed for filling by means of a bayonet lock. Price, \$2.50.

Fowler—Pioneer Lamp Co., 57 East 24th street, Chicago.—Both grease and oil can be handled, a threaded rod with nut in the cap being used for grease and the nut disengaged by means of a little lever to permit a straight push for oil. The plunger has a floating packing ring, like that of a motor piston. Special swivel spouts have right-angle turns for getting grease into awkward places. \$3; swivel spout, 60 cents extra.

Strickler—Powers Sales Co., Chicago.—The object of the Strickler gun is to force lubricant, under heavy pressure, into places that are inaccessible to oil or grease in an ordinary gun, or through passages so clogged that ordinary means of lubrication are useless. The gun has a heavy solid steel barrel with a displacement plunger which screws into it; the exterior head of the screw plunger is fitted with a bar handle and for heavy work a wrench may be applied. The makers state that a pressure of 900 lbs. per sq. in. can be reached. Nozzles and tips with a very wide range of internal and external threads are supplied so that all threaded openings can be connected with. Price, with standard nozzle, $\frac{1}{8}$ pipe thread, \$1.50; extra nozzles, 35 cents each. Dealers, gun, \$1.10; extra nozzles, 25 cents.

Kellogg—Kellogg Mfg. Co., Rochester, N. Y.—A combination grease and oil gun



Variety in grease and oil guns

is made in a single model. For handling oil or gasoline the plunger is used in the ordinary way, and when forcing grease there is a rack-and-pinion movement operated by a hand-wheel at the head of the gun. Rack and pinion are of machined steel and other parts of brass. Two spouts are supplied. \$1.75.

Boyd & Richardson, Ashton, Ill.—Compressed air is used with this gun, which is 3 in. diameter and 20 in. long and holds 4 lbs. of grease. The plunger is packed with crimped oak-tanned leather. Air is applied by hand pump or any other available way. The gun is loaded with a paddle. Oil can also be handled. Price, \$10; dealers, 25 per cent.

Little Giant—Neiman Machine Works, Freeport, Ill.—Features are removable heads, large diameter, screw plunger rod and hand wheel to force grease and spring-packed piston which will handle oil. Bodies are of Shelby tubing, standard pipe threaded $\frac{1}{8}$ in. so that ordinary gas pipe and fittings can be used to make extensions. Three sizes, No. 1, garage size, 4×8 , holds $2\frac{1}{2}$ lbs.; No. 2, 3×6 , holds 1 lb.; No. 3, 3×5 , holds 6 oz. The large size has a folding handle on the body. Prices, aluminum finish, \$5, \$3.50 and \$2; nickel, 25 per cent extra.

Laco—Lubricating Accessories Co., 82 Court street, Paterson, N. J.—These guns will handle both oil and grease. No. 1 for Fords, has a steel cylinder, brass plated and lacquered, 5-in. curved spout and 2-in. straight spout. The end of the gun is tapered and threaded to fit $\frac{3}{4} \times 25$ tapped hole in Ford differential housing. No. 2 is similar to No. 1 but it fitted with a long flexible spout with $\frac{1}{2}$ pipe thread for grease cups. Handle riveted to piston. The barrel is $1\frac{1}{4} \times 9$ in. and plungers are cork. Prices, No. 1, \$.50; No. 2, \$.75.

Townsend—S. P. Townsend & Co., Orange, N. J.—The body of the Townsend gun is made of two telescoping brass tubes, one of which has an opening through which grease is loaded in when the other tube is slid back. The plunger is operated by a screw and crank. It will discharge oil if loaded in the same way, though it is not a suction pump. Four sizes are made; 6-oz., \$3; 8-oz., \$3.50; 12-oz., \$4; 1-lb., \$5. Each is packed in a wood box with filling paddle, 5-in. spout and $3/16$ nozzle.

Bigsby—Bigsby Rotary Mfg. Co., Cleveland.—Used like a pistol, a handle on the stock actuating the racked plunger rod for forcing grease. For using oil the rack mechanism can be disengaged. The gun can be used with one hand, permitting grease to be put in places difficult to reach with two hands. One size. Price, \$3; dealers, \$2.25.

Gleason-Peters — Gleason-Peters Air Pump Co., 255 Classon avenue, Brooklyn, N. Y.—No. 232 is a brass tube gun with cast end fittings, $\frac{1}{4}$ -in. plunger rod and cork plunger bolted on with metal plate reinforcements; cylinder, $1\frac{1}{2} \times 9$ in. No. 277 is an oil gun of the same construction throughout, but is smaller, the cylinder being 2×8 in. No. 18 is a grease gun with brass cylinder, end castings and rod, the latter being threaded through the cap. The plunger is of a rubber composition with metal reinforcements and is swiveled to the rod to give smooth action. The barrel is $1\frac{3}{4} \times 5$ in. and the spout 10 in. long. No. 268 is a large and heavy grease gun with brass barrel 2×8 , brass end castings, threaded brass plunger rod, reinforced cork plunger with swivel and brazed brass spout 7 in. long.

H. M. Boe & Co., 2642 Fremont avenue, No., Minneapolis.—Garage grease guns for operation by compressed air, use either grease or oil, the only change being in the measuring device. Cylinders are of heavy steel, polished or oxydized; the larger models, holding 25 to 35 lbs., are mounted on wheels; these guns formerly had plain bases. A new model has a capacity of 20 lbs. The prices range from \$15 to \$35.

James—Generator Valve Co., Inc., 294 Taaffe Place, Brooklyn, N. Y.—Combination grease and oil guns are made in four capacities, 6, 8, 10 and 12 oz.; barrels, $1\frac{1}{2}$ x 7 in., $1\frac{3}{4}$ x $6\frac{1}{4}$ in., $1\frac{3}{4}$ x 10 in. and 2 x $9\frac{1}{2}$ in.; barrels are heavy seamless brass tubing with cast bronze caps, and plungers have threads for use when forcing grease; thread releases to permit quick action with oil. Each gun supplied with a straight and curved spout. \$2.40, \$2.80, \$3 and \$3.75. Oil guns are $1\frac{1}{8}$ x $11\frac{1}{2}$ in. and $1\frac{1}{8}$ x $7\frac{1}{2}$ in.; barrels are of heavy brass. Small, 60 cents; large, \$1.

Bell—Bell Pump & Mfg. Co., 74 Fort street, East, Detroit.—All Bell guns have a plunger which consists of a cupped leather automatically pressed against the cylinder walls by a brass spreader with beveled edges; a spring forces the spreader into the leather and is held on the projecting end of the plunger rod by a cotter pin. All guns are of 20 gauge brass tubing. The makers state that No. 2 grease can be drawn in with the plunger, though heavier greases have to be packed in. The plunger rod is threaded, but the thread can be disengaged for pumping oil. There are three sizes; 12 x 2, \$4; 8 x $1\frac{3}{4}$, \$2.50; 6 x $1\frac{3}{4}$, \$2. A gun for oil only also is made; price, \$1. Dealers, 30 per cent.

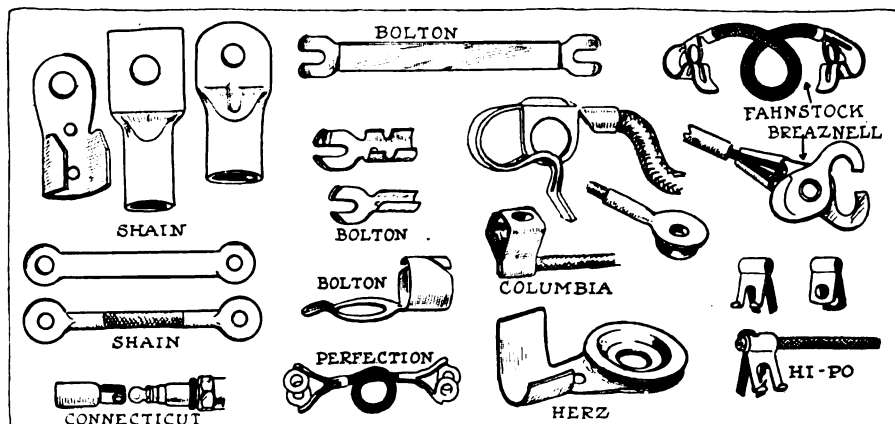
Slip Covers

Campbell—Perkins-Campbell Co., Cincinnati.—Special motor fabrics and linens for covering the upholstery, hold on by quick-detachable fasteners. A feature is the ease of cleansing; linen upholstery may be laundered. Prices vary according to material, which is in several grades, and size of car, the price for a Ford roadster being \$6.50; Ford touring, \$11.80; Overland, \$27; Packard Twin-Six, \$35.50. Covers are stocked for all cars.

Nathan—Nathan Novelty Mfg. Co., New York.—Seat covers are made to cover the cushions, backs, doors and all the leather parts inside the car. Material may be washed with soap and water. Overland, \$10.10 to \$35; Maxwell 25, \$9.70 to \$27; Ford, \$5 to \$17.80. Three standard materials are olive drab, double-texture waterproof mackintosh; black and white woven heavy single-texture automobile cloth, and same as above in brown and white.

Atlas—Atlas Specialty Mfg. Co., Chicago.—Slip covers for Overland, Ford and Dodge only. Double-texture mackintosh is the material used except single-texture may be had for Fords.

Battery Connectors



A few of the hundreds of different styles of battery connectors

Morse—Frank W. Morse, Boston.—Many styles of connectors are made, principally for starting and lighting work. The automatic connector is a device for uniting the ends of two wires and is really nothing more than a plug connection. Prices vary from 50 cents to \$1.15, depending on style. Hard rubber connectors, made in various styles and sizes and requiring no soldering, sell for 35 to 70 cents. Ediswan connectors are made in all styles with one and two caps, the prices ranging from 30 cents to \$1. Terminals for ignition cable are made in three styles. These terminals are made in two parts: the part fastening to the cable consists of a cupped member which is split into four sections so that it may easily be pressed around the insulation, and the part that connects with the terminal post is made up of two spring jaws so that a firm contact is automatically secured. \$7.50 per 100; dealers, 30 to 50 per cent.

Columbia—National Carbon Co., Cleveland.—Four types of connectors for low-voltage work are: A flat type, insulated except at the ends; two snap forms of terminals, and a plain terminal.

Simplex, Perfecto and Snap-on—Simplex Auto Specialty Co., Detroit.—These connectors do not call for removing the binding post nuts when being attached. All except the Snap-on have forked ends with the points turned up, like a horse-shoe. The Snap-on has an elongated opening which slips over the nut; the terminal is then pulled back till the narrow part of the opening comes under the nut, where it is held by a spring hump. Flexible battery connectors with terminals, 25 cents per dozen; \$1 per 100. Copper bar connector, tape insulated, 25 cents per dozen; \$1 per 100. Cable terminals, four sizes, ranging from small

primary size to $\frac{1}{2}$ -in. high-tension cable type, 20, 25, 35 and 50 cents per dozen; 75 cents, \$1, \$2.50 and \$3 per 100.

Connecticut—Connecticut Telephone & Electric Co., Meriden, Conn.—Both high- and low-tension connectors are manufactured. The QD high-tension terminal has an insulating collar carrying two spring metal fingers which snap on a ball terminal. The cable is secured by a screw which spreads the strands and makes firm contact; the insulating collar extends over the end of the cable insulation. With $\frac{3}{8}$ or $\frac{5}{16}$ collars, 5 cents; ball nuts, 2 cents extra; primary type, no insulating collar, same price. These primary terminals are made in two sizes, $\frac{3}{16}$ for rubber primary wire and $\frac{7}{32}$ for braided primary wire. Tube terminals are made for soldered connections and are packed in packages of 100 at 4 cents each. Nutmeg copper terminals are small and heavy and have lugs for bending over the bared wire. Put up in standard packages of 1,000, at 1 cent each.

Handy Connectors—Chicago Electric Mfg. Co., Chicago.—Several types of connectors are for starting and lighting equipment and others for ignition. Twenty-three different types of Ediswan connectors are made, ranging from an ordinary socket with open terminals for soldering, at 30 cents, to a four-terminal screw socket which enables two different voltages to be used, at \$1. Battery connectors are made in three styles; a type in which the terminal has sufficient spring to it to hold the nut securely; a type in which a double terminal is used, firm contact being provided by the tendency of the two parts to move off center; and a connector made out of thin sheet copper and insulated in the center with friction tape; per thousand, \$10, \$28 and \$7.

Breaznell Battery Connectors—J. H. Breaznell, Brooklyn, N. Y.—The feature of the connector is that it may be attached without removing the terminal nut. The terminal consists of two hooks which are pivoted so that when they are put in place on the binding post they completely surround it. The wire is attached to the connector by merely bending it into a loop and compressing it in the sheath which forms the body of the connector.

Herz—Herz & Co., 245 West 55th street, New York.—Cable and wire terminals, and battery connectors are manufactured. The former are in the form of a double ferrule or thimble which slips over the end of the cable. The inner thimble is a tight fit on the insulation and to still more securely lock it in place and at the same time make a good contact an ordinary wood screw is in the center. The outer ferrule, which carries the terminal, is then slipped over, being split so that this can be easily done. The terminals are made in six sizes from $\frac{1}{4}$ to $\frac{5}{8}$ by sixteenths. Per dozen, including screws, $\frac{1}{4}$ and $\frac{5}{16}$, 60 cents; $\frac{3}{8}$ and $\frac{9}{16}$, 75 cents; $\frac{1}{2}$ and $\frac{5}{8}$, \$1. Another type of wire terminal which does not require solder has a circular groove around it into which the bare wire is looped after the end is securely fastened to the terminal.

Shain—Charles D. Shain, Station L, Brooklyn, N. Y.—All sizes of terminals are made in three styles: 1—sheet copper with turn-over wings to enclose cable; 2—copper tube with a sleeve to take the cable; 3—a flat terminal part, and brass tube with a slit through the closed end of the sleeve for the wire to pass through. All have plain holes for binding post connection. Battery connectors are made in two types, solid copper with a hole at each end and a flexible connector with cord connecting plain copper terminals. Solid connectors, \$10 per 1,000; flexible, \$35. The sheet copper terminals list at \$9 to \$24 per 1,000, the tube copper \$30 to \$74, and the brass tube \$30 to \$42.

Climax—Climax Motor Devices, Cleveland.—A substantial spring wire terminal, conical in shape, which screws over the end of the cable after the wire strands have been laid bare for $\frac{1}{2}$ in. and then folded back over the insulation. The strands are held tightly between the base of the terminal and the insulation. The conical construction makes the terminal very flexible; per hundred, \$2; dealers, 25 per cent.

Standard and Perfection—Fitzgerald Mfg. Co., Torrington, Conn.—Flexible connectors for dry cells are in two styles, Perfection having a spring connector for

use without thumb nuts, and the Standard having plain corrugated tips for use with nuts. A snap terminal has lugs for bending over the cable and extends at right angles. Copper and brass terminals of the plain bend-over type are made in four sizes. Perfection battery connectors, 70 cents per dozen; dealers, lots of 100, \$2.50; 1,000, \$20. Standard connectors, 15 cents per dozen; dealers, lots of 100, 75 cents; 1,000, \$6.50. Snap terminals, 25 cents per dozen; \$10 per 1,000. Plain terminals, No. 0, \$2; No. 1, \$2.50; No. 2, \$5; No. 3, \$7 per 1,000.

Hi-Po—Hi-Po Waterproof Battery Co., Brooklyn.—A one-piece dry cell terminal is made by bending spring metal to conform to the shape and diameter of the insulation, the ends being carried out at right angles to the cable and either forked or perforated. The forked type can be attached without removing the nut while the perforated terminal requires the removal of the nut. In both the natural tendency of the metal to spring open locks the terminal and the nut. The bared strands of wire are turned back over the insulation and are pinched by the terminal when in place, forming a good contact. Flexible connectors with two terminals, forked or perforated, 25 cents per dozen; \$1.25 per 100; \$11 per 1,000.

Fahnestock—Fahnestock Electric Co., Brooklyn; National Carbon Co., Cleveland, O., selling agent.—These connectors have clips of spring metal made as shown in the accompanying illustration; the thin lug grips the thread of a binding post securely. All sizes are made. A Ford wiring set fitted with these terminals includes four secondary cables cut to length and a commutator set of four wires enclosed in a single oilproof conduit. Complete set, \$1.25; high tension cables only, 75 cents per set; commutator wiring only, 75 cents per set.

Elk—Elk Mfg. Co., New York.—This terminal clamps to the end of the wire and does not require solder. It is primarily for spark plug use, as it is provided with a forked end which slips over the spark plug terminal and holds itself in place automatically. The terminal may be attached without tools and is insulated by a rubber cover; each, 25 cents

Radiator Compound

Rad-Fix—Radiator Fix Co., 29 Broadway, New York.—Will stop all leaks in soldered connections except where the vibration is extremely severe, and in radiators. This liquid forms a weld on the outside and not on the inside; this is because it does not solidify until it comes in contact with the air. In applying Rad-Fix the first step is to draw the water off until the level of the leak is reached; then the compound is poured in and allow to stand over night, if possible. In the morning the radiator will be ready for use. 75 cents; dealers, 50 cents.

Rie-Nie—Durkee-Atwood Co., Minneapolis.—This substance is a powder and a tablespoonful is sufficient to mend any ordinary leak, either in radiator or cylinder jackets. The powder is merely added to the water in the cooling system. Enough in one can for six repairs. Dealers, 45 cents, or \$4.50 per dozen.

Stop-A-Leak—Jones Auto Supply Co., Oakland, Cal.—A powder which must be applied when the water is hot. It coagulates on coming in contact with the air; 75 cents per can; dealers, 33 $\frac{1}{3}$ per cent; case lots, 50 per cent.

Radi-No-Leak—Crum Mfg. Co., Ottawa, Kan.—A powder put up in pint cans which is for stopping leaks in radiators; 75 cents per can.

Leak-No-More—Delphi Auto Specialty Co., Delphi, Ind.—A vegetable compound. To use, fill radiator full of water, start motor, and then pour the compound in slowly. Use one-half package per 3 gal. capacity; 25 cents; dealers, 50 per cent.

X-X Laboratories, 630 Washington street, Boston.—A liquid compound for stopping leaks in cooling system or tires. Put up in pint cans; enough for two radiators, \$1.50 per can; dealers, \$1.

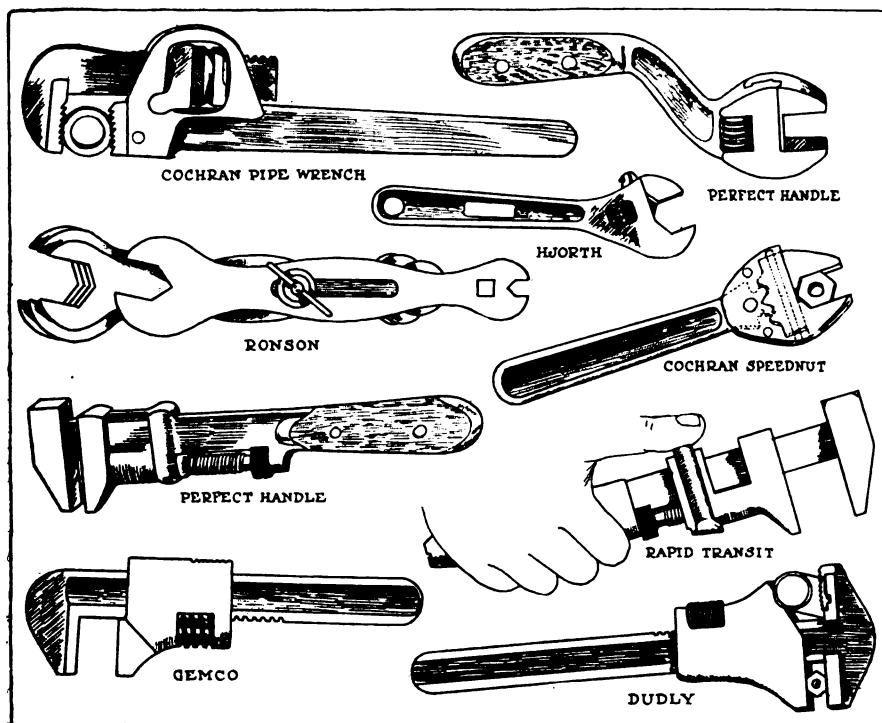
Anti-Leak—Shondell Mfg. Co., Napoleon, O.—A powder which is poured slowly into the radiator while the motor is running; 50 cents.

Radico—Radico Mfg., Springfield, Mass.—A chemical compound soluble in water which is said to make a metallic repair when it comes in contact with the air. Acts in 15 min. 60 cents; dealers, single dozens, \$7.20, with 20 and 10 off; six dozen, 40 off; twelve dozen, 50 off.

Stoppit—Cumings Bros., Flint, Mich.—A partially soluble powder for stopping leaks. 50 cents per can; dealers, \$3 per dozen.

Car Cover

R. A. Humphry's Sons, 1021 Callowhill street, Philadelphia.—Made of sheeting, drill or light-weight duck, this cover is to keep dust away from the car when it is stored. Size, 12 $\frac{1}{2}$ x 20 ft. Price, sheeting, \$2.50; duck, \$4.50.



There are not many nuts that cannot be gripped by these wrenches

Wrenches

Williams—J. H. Williams & Co., Brooklyn, N. Y.—Drop-forged non-adjustable wrenches are made in all sizes, double and single ended, S and straight, no adjustable wrenches being produced. Wrenches are put up in sets of all sizes. The "Big 6" automobile set includes six double-ended wrenches of the following capacities; 7/16-1/2, 9/16-11/16, 19/32-25/32, 5/8-3/4, 7/8-1 1/16, 1-1 1/4; unfinished, \$2; semi-finished, \$2.94; finished, \$4.44. A similar set made up of thin wrenches and with a spark plug wrench added, unfinished, \$2.29; semi-finished, \$3.27, and finished, \$4.74. Two sets are put up specially for Ford cars; set A includes nine socket wrenches with right angle handles, one straight socket wrench, one double-end solid wrench and one single-end solid wrench fitting all nuts, bolt heads and cap screws on the Ford; unfinished, \$3.73; semi-finished, \$5.60; finished, \$7.52. Ford set B includes four double-end solid wrenches and one angle socket wrench; unfinished, \$1.71; semi-finished, \$2.54; finished, \$3.79. Canvas rolls for Ford sets, 45 cents and 60 cents extra. Other sets, 45 cents extra. Dealers, 50 per cent.

Perfect Handle—The H. D. Smith & Co., Plantsville, Conn.—Adjustable and non-adjustable end-opening pipe and monkey-wrenches; all have the "Perfect" handle, consisting of wood cheeks riveted to the steel shank, which is in

one piece with the head. Non-adjustable wrenches have angle heads and are of drop-forged stock with milled heads, case-hardened; six sizes take bolt sizes from 1/2-in. to 1-in. and prices are from \$5 to \$14 per dozen. The adjustable end-opening wrenches are made in three sizes, opening 7/8, 1 1/8 and 1 3/8 in.; prices, \$10, \$12.50 and \$15 per dozen; a similar tool, differing only in that it has an S handle, is made at the same prices. The monkey-wrench has a single-forging bar for both head and handle and another forging, with connecting yokes both front and back, for the sliding jaw; the only other part is the screw, barring the wood handles. Made in seven sizes, jaw openings from 1 1/16 to 4 in. and prices from \$9 to \$36 per dozen. Pipe wrenches are in five sizes, with maximum capacities of 3/4-, 1-, 1 1/2-, 2- and 2 1/2-in. pipe; prices from \$2 to \$6 each.

P. S. & W.—Peck, Stow & Wilcox Co., Southampton, Conn.—This line includes only monkey wrenches. The Leader is a forged steel wrench consisting of three pieces only, one of which includes a handle, shank and outer jaw, the second the inner sliding jaw and its frame, and the third the adjusting screw with its knurled knob. All parts are of forged steel; 6-in., \$9 per doz.; 8 in., \$10; 10-in., \$12; 12-in., \$14; 15-in., \$24. The Stronghold wrench has a separate wood handle riveted on a metal frame, a one-piece forged steel

shank and outer jaw in one piece which extends to the end of the handle, which is riveted over, and the sliding jaw with its frame and adjusting screw. This tool is made in the same sizes and at the same prices as the solid steel wrench. Both are finished in black, while the solid steel wrench may be finished bright at an extra cost. Standard type monkey wrenches, wrought iron, black finish, 6-in., \$10 per dozen; 8-in., \$12; 10-in., \$14; 12-in., \$17; 15-in., \$24. Stillson type pipe wrenches, all sizes, 6- to 48-in., \$2 to \$18 each.

B. & S.—Billings & Spencer Co., Hartford, Conn.—These wrenches are made in all styles from the smallest pocket wrench to the largest—adjustable, non-adjustable, double and single ended, pipe and ratchet. Solid wrenches and friction wrenches are put up in sets for motor car service; in all cases the only materials used are drop forgings. Practically all wrenches are hardened. Model C is a 5-in. adjustable wrench, hardened, with checkered handle. The sliding bar is graduated in inches and fractions; black, \$10 per dozen; nickel, \$11 per dozen. Model E is a 7-in. adjustable wrench with removable pipe jaw; black, \$12; nickel, \$15; pipe jaw, \$4.24 per dozen extra. Model F is an adjustable end opening wrench made in five sizes, capacities from 1/2-in. to 1 5/16-in.; finished black with polished head, \$7.20 to \$15 per dozen. Model H is an adjustable S-wrench made in four sizes from 6 in. to 12 in.; \$8 to \$11 per dozen. Model G is an adjustable automobile wrench, made in six sizes, with maximum openings from 1 11/16 to 3 3/16 in.; from \$7 to \$28 per dozen, semi-finished, \$8 to \$34 per dozen, full finish, and the four smaller sizes, 6 to 12 in., are finished in nickel at from \$10 to \$24 per dozen. Detachable pipe wrench jaws, \$4.20 and \$4.80 per dozen. Model GA is an adjustable wrench with jaws at an angle of about 25 deg., made in three sizes, 6, 8 and 10 in., at prices ranging from \$8 per dozen for the smallest size, semi-finished, to \$17 per dozen for the largest size, nickel. An adjustable all-steel alligator made in three sizes, 6, 8 and 10 in., semi-finished, \$9, \$11 and \$12 per dozen. Also furnished in full finish and nickel. Allen friction socket wrenches are put up in sets, the largest of which is No. 31 and contains one friction wrench, spark plug socket, long and short extensions, screw-driver, universal joint and thirty pressed steel sockets, ranging from 5/16 in. hex. to 1 1/32 in. hex. by 32nds, in addition to a number of special hexagon and square sizes; \$10. The smallest set is for Fords and includes friction wrench, spark plug socket, long and short extensions, eight pressed steel sockets to fit Ford nuts and cap screws, \$5. Another Ford set is the Eureka, which includes a ratchet wrench, long and short exten-

sions, nine pressed steel sockets and an oval socket, \$3.50. All sets are put up in substantial wood boxes. Solid double ended wrenches are put up in sets including a very wide range of sizes, some of which are designed especially for use on foreign cars. Set No. 8 consists of five S. A. E. standard wrenches taking the following nuts: $\frac{1}{4}$ -5/16, $\frac{3}{8}$ -7/16, $\frac{1}{2}$ -9/16, $\frac{5}{8}$ -11/16, $\frac{3}{4}$ -7/8; semi-finished, \$2.48; finished, \$3.71. Sets are put up in cardboard boxes. Dealers, solid wrench sets, 60 per cent; adjustable wrenches, 45 per cent; adjustable alligators, 33 $\frac{1}{3}$ per cent; adjustable automobile wrenches, 33 $\frac{1}{3}$ per cent; Allen friction sets, 33 $\frac{1}{3}$ per cent; Eureka sets, 33 $\frac{1}{3}$ per cent.

Wright—Wright Wrench & Forging Co., Canton, O.—A special motor car model, of the all-steel monkey type, has a button on the back of the sliding adjustment, permitting it to be closed quickly on a nut; 8-in., \$12 per dozen; 10-in., \$15 per dozen. Both larger and smaller quick-adjustable wrenches are made, as well as many sizes with the ordinary adjustment; also solid forged wrenches.

Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.—A specialty is made of stamped steel wrenches in a wide range of sizes, both single and double ended, all having straight handles. A special line includes the "Vestpokitrenchiz," which are made to fit nuts from 5/16- to 1 $\frac{1}{4}$ -in., and even the largest can be carried in the pocket. The prices per gross run from \$3 for the smallest to \$12.96 for the largest. Dealers, 40 per cent. The largest size retails at 10 cents.

Rapid Transit—Athol Machine Co., Athol, Mass.—This drop-forged monkey-wrench has a thumb-piece at the back of the sliding jaw frame, pressure on which permits rapid adjustment; either all polished or black with polished handle. Only 6-in. size is made, at 75 cents black and \$1 polished; discount, 25 per cent.

Gemco—Garage Equipment Mfg. Co., Milwaukee—A one-hand wrench has a sliding jaw with screw adjustment, which can be pushed forward with the thumb until the nut is disengaged and slid to any desired position; a spring brings sliding jaw back. Four sizes are 4 $\frac{1}{2}$ -in., 50 cents; 7-in., 60 cents; 9-in., 70 cents, and 11-in., 80 cents. For oil finish add 10 cents to all except the largest, which is 20 cents extra.

Dudley Tool Co., Menominee, Mich.—An adjustable wrench, has double jaws projecting on both sides of the shank, one side taking pipe and the other side nuts. The shank is a drop-forging and the sliding head of malleable iron. Four sizes, taking $\frac{1}{8}$ to $\frac{3}{4}$ pipe and nuts up

to 1 $\frac{1}{4}$ -in.; price, \$15 per dozen; 9-in., pipe $\frac{1}{8}$ to 1 in., nuts to 1 $\frac{1}{8}$ in., price, \$18 per dozen; 12-in., pipe $\frac{1}{4}$ to 1 in., nuts to 1 $\frac{1}{2}$ in., price, \$24 per dozen, and 15-in., pipe $\frac{3}{8}$ to 2 in., nuts to 2 $\frac{1}{4}$ in., price, \$42 per dozen.

Ronson—Art Metal Works, 7-15 Mulberry street, Newark, N. J.—A set of four double-ended wrenches, made of flat steel, hardened, is assembled by a screw and thumb-nut passing through slots in the shanks of the wrenches. Length closed, 6 in.; open, 8 in.; weight, 8 oz. Price, \$1 each; dealers, \$6.60 per dozen.

Speednut — Cochrane Pipe Wrench Mfg. Co., 7800 Woodlawn avenue, Chicago.—The act of putting pressure on the wrench brings the jaws together on the nut. The 6-in. takes nuts $\frac{1}{8}$ to $\frac{3}{8}$, and the 8-in. $\frac{1}{4}$ to $\frac{3}{4}$. The price is \$2 for either. The Cochrane pipe wrench is made with the handle and the frame carrying the adjusting nut in one piece. The parts are so assembled that all strains are compression, rather than shearing. There is a rocking bearing between the movable jaw nut bracket and the frame. Seven sizes are made, taking pipe from $\frac{1}{8}$ - to $\frac{1}{2}$ -in. in the smallest and $\frac{1}{4}$ - to 3 $\frac{1}{2}$ -in. in the largest. The small size costs \$2, as does also the next size, which takes pipe up to $\frac{3}{4}$ -in.; for pipe to 1-in., \$2.25; 1 $\frac{1}{2}$ -in., \$3; 2-in., \$4; 2 $\frac{1}{2}$ -in., \$6.

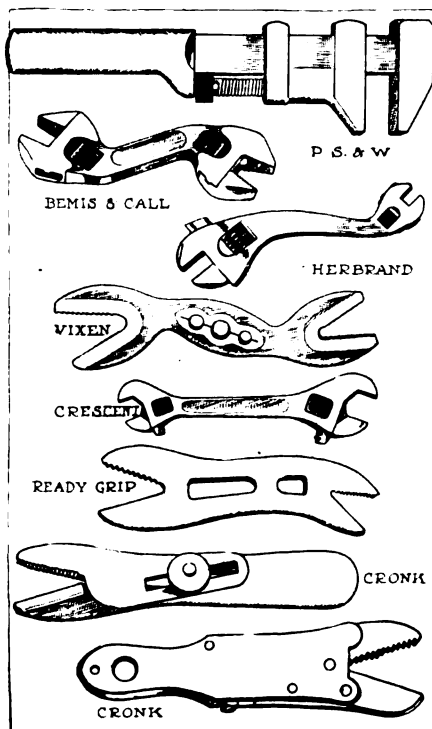
C-M-B—C-M-B Wrench Co., Garwood, N. J.—Socket wrenches in sets are manufactured almost exclusively and are put up in assortments to cover all requirements. No. 81 is new and has 10

sockets, $\frac{1}{4}$ to $\frac{5}{8}$ hex and $\frac{1}{4}$ to $\frac{1}{2}$ square, solid handle, extension and universal packed in fiber case; price, \$3.20. No. 82 is the same but has no universal; price, \$2.60. No. 83 is the same but has neither universal nor extension; price, \$2.20. A Ford set with 10 sockets fitting all Ford nuts and cap screws, handle, extension and universal, in substantial case, \$4.

Bemis & Call Hardware & Tool Co., Springfield, Mass.—Among the latest models of wrenches is No. 80, end-opening, with the head at an angle of 22 deg. and having adjustable jaws and a straight handle; the jaws are thin enough for check nuts and will take both hex and square nuts. Five sizes are made, $\frac{1}{2}$ -in. and $\frac{3}{4}$ -in., \$7.80 per dozen; 15/16-in., \$9.60 per dozen; 1 $\frac{1}{8}$ -in., \$12 per dozen; 1 5/16-in., \$15 per dozen. No. 75 is of much the same construction and is slightly lower in price. S-wrenches, both double- and single-ended, are made on the same principle; a double-end S-wrench, adjustable, has at one end a pipe wrench taking pipe $\frac{1}{8}$ to $\frac{1}{2}$ in. and at the other a nut wrench taking $\frac{3}{4}$ in.; it is 6 in. long; \$15 per dozen. Many other types of wrenches are made.

Trimo—Trimont Mfg. Co., Roxbury, Mass.—The Trimo Stillson wrench has a steel frame and a guard which prevents accidental turning of the adjusting nut. Pipe and nut types are made, with wood and steel handles, in all sizes. All parts are interchangeable. A special motor model pipe wrench has narrow jaws, permitting use in restricted places, and wood handle. Three sizes are made; 6-in., maximum pipe, $\frac{1}{2}$ -in., \$2; 8-in., $\frac{3}{4}$ -in. pipe, \$2; and 10-in., $\frac{3}{4}$ -in. pipe, \$2.25.

Cronk—Cronk & Carrier Mfg. Co., Elmira, N. Y.—This line includes both adjustable and non-adjustable wrenches. No. 52 is an adjustable alligator with one jaw corrugated and the other plain, and quick acting sliding adjustment. Will take maximum pipe $\frac{7}{8}$ -in.; 6-in., polished, \$10 per dozen; nickel, \$12 per dozen; 8-in., \$12 and \$14. No. 42, adjustable alligator with thumb screw adjustment, takes pipe $\frac{1}{2}$ -in. and under; 6-in., \$9 per dozen; 8-in., \$12 per dozen. Wrench set, including nine tools in canvas roll with universal handle, has wrenches which will take nuts $\frac{3}{8}$ to $\frac{3}{4}$ and pipe up to 1-in., \$18 per dozen. Adjustable nut wrench, end opening, slot-and-thumb-screw adjustments, 6-in., \$10 per dozen; 8-in., \$12. No. 42 is a 6-in. flat non-adjustable wrench with an alligator jaw in one end and three wrench openings in the other; takes cap screws $\frac{3}{8}$, 7/16 and $\frac{1}{2}$ in. and hex nuts 5/16, $\frac{3}{8}$ and 7/16, \$3 plain and \$4 nickel; 8-in. takes cap screws 7/16, $\frac{1}{2}$ and $\frac{3}{4}$ and hex nuts $\frac{3}{4}$, 7/16 and $\frac{1}{4}$, plain, \$3.60; nickel, \$4.80 per dozen. No. 7, flat steel.



Mostly alligators for gripping things that are hard to grip

alligator in one end and stepped jaw for nuts in the other end, 6-in., will take nuts from $\frac{3}{8}$ to $\frac{5}{8}$ and pipe up to $\frac{3}{4}$ in., \$3 plain and \$4 nickel; 8-in. will take nuts $\frac{3}{8}$ to $\frac{3}{4}$ and pipe up to 1 in., plain, \$3.60; nickel, \$4.80 per dozen. A similar wrench is made with a stepped nut jaw in either end; 6-in. takes $\frac{5}{16}$ to $\frac{3}{4}$, \$3 and \$4; 8-in. takes from $\frac{3}{8}$ to $\frac{13}{16}$, \$3.60 and \$4.80 per dozen.

Herbrand—The Herbrand Co., Fremont, O.—A specialty is made of wrenches in sets. No. 8 set includes six wrenches with heads milled for U. S. standard nuts and cap screws from $\frac{1}{4}$ in. to $\frac{1}{2}$ in., one being a spark plug wrench; \$1.94 to \$3.88; roll or wood box, 45 cents extra. No. 9, set of five thin wrenches, milled for S. A. E. standard nuts and cap screws, $\frac{1}{4}$ in. to $\frac{7}{8}$ in., \$1.35 to \$2.70, according to finish; roll or box, 45 cents; dealers, 60, 10 and 10 per cent. Larger sets also are made, as well as a large assortment of adjustable and non-adjustable wrenches sold separately.

Mossberg—Frank Mossberg Co., Attleboro, Mass.—There are few styles of nut wrenches that are not represented in this line. A specialty is made of motor wrenches. The Auto-cle is put up in sets consisting of a number of sockets, handle with ratchet, universal joint and extension bar. No. 1, the large set, has 31 sockets, taking from $\frac{5}{16}$ to $1 \frac{9}{32}$ hex nuts and several sizes of square nuts and cap screws. The ratchet is reversible and there are two extensions. Packed in substantial wood case, \$10. No. 2 set is much smaller, having 12 sockets, taking nuts from $\frac{15}{32}$ to $1 \frac{3}{32}$ hex, and several square sizes. Reversible ratchet, two screw driver bits and two extensions complete the list; the case is of flexible leather; \$7.50.

Bonney—Bonney Vise & Tool Works, Allentown, Pa.—Wrenches in a wide range of styles include steel and malleable solid wrenches, crocodiles, monkey wrenches, Stillsons, adjustable pipe and nut S-wrenches and many others. A special motor Stillson is made with steel handle and one jaw in one piece; jaws are thin and have closely milled teeth which leave but slight marks. They are drop forged from tool steel. The 6-in. takes pipe $\frac{1}{8}$ to $\frac{1}{2}$ in. and the 8-in. $\frac{1}{4}$ to $\frac{3}{4}$ in.; price, either size, \$2. The Vixen and Baby Vixen are of the alligator type. The Vixen takes pipe $\frac{1}{4}$ to $1 \frac{1}{4}$ in. and has three threading dies in the handle; \$5, \$7 and \$9 per dozen in blue, white nickel and full nickel. The Baby Vixen takes pipe $\frac{1}{4}$ to $\frac{3}{4}$ in. and also has three dies; \$4.50, \$6 and \$7.50 per dozen.

Barnes—Barnes Tool Co., New Haven, Conn.—This line includes a series of adjustable wrenches of the monkey type,

all of similar design, of forged steel with hardened jaws. No. 95 is $5 \frac{1}{2}$ in. long, has jaws $\frac{13}{32}$ in. thick, opening $1 \frac{5}{16}$ in. No. 97, same size but with narrow jaws for lighter work. No. 98 is stamped instead of forged, is $5 \frac{1}{2}$ in. long, has jaws $\frac{3}{16}$ in. thick and opens $1 \frac{3}{8}$ in. This model may be had in polished blue finish or rough nickel.

Boston—Boston Wrench Co., Boston.
—Wiebusch & Hilger, 106 Lafayette street, New York, sales agents.—A single quick-adjustable wrench, 6-in. and 8-in. sizes. The sliding jaw has teeth engaging with corresponding teeth on the front of the shank; the jaw will slide freely towards the head under the action of a strong spring, but cannot be slid back until the thumb spring at the back is pressed. Putting pressure on a nut serves to force the jaw more tightly against the shank; 6-in., blue finish, 65 cents; dealers, 43 cents; 8-in., blue finish, 75 cents; dealers, 50 cents; nickel, 10 cents extra.

Multiplex and Multo—Lowell Wrench Co., Worcester, Mass.—Two wrench sets are made of the ratchet-and-socket type suitable for motor car or repairshop work, though most of the product of this concern consists of large, heavy wrenches. The Multiplex set has a 12-in. reversible ratchet handle and sockets to take the following sizes of square or hexagon nuts: $\frac{1}{2}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$ and $\frac{3}{4}$. The construction is unusually heavy throughout; \$6. The Multo set has a reversible ratchet handle and has 14 sockets, taking square or hexagon nuts from $\frac{1}{4}$ to $\frac{5}{8}$. The price is the same as the Multiplex.

K. & B.—Kilborn & Bishop Co., Lloyd & River streets, New Haven, Conn.—Adjustable open-end wrenches with $22 \frac{1}{2}$ deg. heads, general purpose S and straight wrenches and several types of alligators comprise this line. The adjustable wrenches, all single-ended, are made in the following sizes: 4-in., capacity, $\frac{1}{2}$ in., black body and polished face, \$7.75 per dozen; full polished, \$8.35; nickel plated, \$10; 6-in., capacity, $\frac{3}{4}$ in., \$9, \$9.60 and \$12; 8-in., capacity, $\frac{15}{16}$ in., \$11, \$12, \$15; 10-in., capacity, $1 \frac{1}{4}$ in., \$13.75, \$15, \$18; 12-in., capacity, $1 \frac{5}{16}$ in., \$17.75, \$19.20, \$24. The Saxon, a double-ended alligator, takes pipe $\frac{1}{4}$ to $\frac{3}{4}$ and has three rethreading dies in the shank for $\frac{5}{16}$ -18, $\frac{3}{8}$ -16, and $\frac{1}{2}$ -13 threads; black, \$6.75 per dozen; white nickel, \$7 per dozen; full nickel, \$8.40 per dozen. Terrier wrench, single-end alligator with slots in handle for nuts, is made in two sizes, $5 \frac{1}{2}$ -in. taking pipe $\frac{1}{8}$ to $\frac{3}{8}$, and 7-in., taking pipe $\frac{1}{4}$ to $\frac{3}{4}$; \$4.50 and \$8 per dozen. Solid wrenches are put up in sets in wood boxes and canvas bags. Prices range from \$1.30 unfinished to \$3 finished.

Ready Grip—Bridgeport Hardware Mfg. Corp., Bridgeport, Conn.—This is a double-ended alligator forged from flat steel, hardened all over, takes nuts from $\frac{1}{4}$ to $\frac{7}{8}$, and has slots and handle in shank for small cap screws. Length, $4 \frac{1}{2}$ in.; weight, 4 oz.; full polished; 25 cents; dealers, \$1.50 per dozen.

Crescent—Crescent Tool Co., Jamestown, N. Y.—Only adjustable wrenches are made and all are of the end-opening type with angle heads. The latest is a double-ended adjustable made in two sizes, one taking $\frac{3}{4}$ to $\frac{15}{16}$ and the other $\frac{15}{16}$ to $1 \frac{1}{8}$; \$1.25 and \$1.50 polished and \$1.60 and \$1.90 nickeled; dealers, \$10 and \$12 per dozen. Single-end adjustable wrench, 4-in., capacity $\frac{1}{2}$ in., 65 cents; \$7.80 per dozen; dealers, \$5.20; 6-in., capacity, $\frac{3}{4}$ in., 65 cents; \$7.80 per dozen; dealers, \$5.20; 8-in., capacity, $\frac{15}{16}$, 80 cents; \$9.60 per dozen; dealers, \$6.40; 10-in., capacity $1 \frac{1}{8}$ in., \$1, \$12 per dozen polished; dealers, \$8. Bodies are drop forged and hardened all over. Spring washer on thumb screw retains adjustments.

Armstrong—Armstrong Bros. Tool Co., 333 North Francisco avenue, Chicago.—Non-adjustable, drop-forged steel wrenches; sets are for tool boxes. Wrenches are made in three finishes, unfinished, semi-finished and finished. Set No. 2 for S. A. E. standard nuts and cap screws consists of six double-end wrenches, taking $\frac{1}{4}$ and $\frac{5}{16}$, and $\frac{3}{8}$ and $\frac{7}{16}$, $\frac{1}{2}$ and $\frac{9}{16}$, $\frac{5}{8}$ and $1 \frac{1}{16}$, and $\frac{3}{4}$ and $\frac{7}{8}$; \$2.10, \$3.02 and \$3.97, according to finish; in canvas roll, \$2.60, \$3.52, \$4.47. No. 4 set for S. A. E. standard nuts includes five double-end wrenches, $\frac{1}{4}$ and $\frac{5}{16}$, $\frac{3}{8}$ and $\frac{7}{16}$, $\frac{1}{2}$ and $\frac{9}{16}$, $\frac{5}{8}$ and $1 \frac{1}{16}$ and $\frac{3}{4}$, \$1.51, \$2.21, \$3.27; in canvas roll, \$2.01, \$2.71 and \$3.77. Larger sets are made and also sets consisting of thin wrenches suitable for check nuts.

Herbrand—The Herbrand Co., Fremont, O.—This line includes a large number of adjustable and non-adjustable wrenches, the smallest of which is an adjustable vest pocket wrench 3 in. long, jaws opening $\frac{3}{4}$ in., and weighing 3 oz.; mottled or black nickel, \$6 per dozen; polished nickel, \$7 per dozen. Adjustable S-wrenches with end openings are made both single and double. Single wrenches, 6 in., black finish with polished head and jaw, \$14.40 per dozen; 8 in., \$18 per dozen; 10 in., \$24; 12 in., \$30. Double ended S-wrenches, 9 in., \$38 per dozen; small end opens $\frac{13}{16}$ and large end $1 \frac{9}{16}$. A drop forged adjustable motor car wrench is made in 7-, 8- and 9-in. sizes at prices ranging from \$6.60 to \$9.60 per dozen; finishes are black, mottled, black nickel and polished nickel. The same wrench is made in larger sizes for heavy work. Pipe wrench jaws for

adjustable wrenches, from \$4 to \$6.60 per dozen. Solid wrenches are put up in sets among which are the following: No. 2 automobile set for light work, S. A. E. standard openings, five double-ended wrenches taking from $\frac{1}{4}$ to $\frac{7}{8}$, inclusive, unfinished, \$1.41; semi-finished, \$2.12; finished, \$2.82. Canvas roll or wood box, 45 cents extra. Automobile set No. 8, seven double-ended thin wrenches and spark plug wrench taking from $\frac{1}{4}$ to $\frac{3}{4}$, unfinished, \$1.94; semi-finished, \$2.91; finished, \$3.88. Box or roll, 45 cents extra. Automobile set No. 12, standard wrenches for S. A. E. sizes, includes five double-ended wrenches taking from $\frac{1}{4}$ to $\frac{7}{8}$, unfinished, \$1.60; semi-finished, \$2.40; finished, \$3.20. Roll or box, 45 cents extra.

Wakefield — Clarence E. Wakefield, Worcester, Mass.—Both nut and pipe wrenches are manufactured, and all are adjustable, of the flat body type. The line includes the following: No. 0, 5 in. $1\frac{1}{4}$ -in. opening, mottled finish, 11 cents; No. 1, 5 in., $1\frac{1}{4}$ -in. opening, satin finish, 12 cents; No. 2, 5 in., $1\frac{1}{4}$ -in. opening, nickel finish, 15 cents; No. 4, 5 in., $1\frac{1}{4}$ -in. opening, heavy, mottled finish, 18 cents; No. 4M, 5 in., $1\frac{1}{4}$ -in. opening, nickel finish, 20 cents; No. 3, $5\frac{1}{2}$ in., $1\frac{3}{8}$ -in. opening, mottled finish, $19\frac{1}{2}$ cents; No. 3M, $5\frac{1}{2}$ in., $1\frac{3}{8}$ -in. opening, nickel finish, 23 cents; No. 3TL, 6 in., tire lever handle, nickel finish, 25 cents; No. 7, $5\frac{5}{8}$ in., $2\frac{1}{4}$ -in. opening, heavy, nickel finish, 54 cents; No. 8, like No. 6 but much heavier, nickel finish, 72 cents; No. 9S, 9 in., 2-in. opening, quick sliding adjustment, 70 cents. Combination wrench for nuts and pipe has an extra loose jaw with teeth on the other side; when this jaw is slid against the head the teeth are in position to grip a pipe; when slid against the movable jaw the flat side is available for nut work; semi-finished, 80 cents; mottled finish, \$1; nickel, \$1.30. Pipe jaw, 50 cents extra. A special pipe wrench with lever adjustment is made in five sizes, costing from \$1.75 to \$5. No. 8 wrench has a pressed steel handle.

Bay State—George A. Cutter, sales agent, 147 Milk street, Taunton, Mass.—The Bay State Auto Kit is a socket wrench set and is put up in three sizes. Set No. 1 includes ratchet handle with swivel and reverse, long and short extensions, spark plug socket and 30 other sockets. An improvement has been made by forming the sockets from heavier steel. Set, \$10. Set No. 2 is the same as No. 1, but there are 12 sockets instead of 31, \$7.50. Set No. 3 is intended for the Ford and includes a quick-acting double-ended ratchet wrench and 11 pressed steel sockets, casehardened and nickel plated, a screwdriver bit and 7-in. extension, \$4. All sets are put up in substantial wood boxes with hinged covers. In addition to these sets, the

Stickit wrench is manufacturer. This consists of a double-ended ratchet wrench and seven stamped steel sockets strung on a square steel shank. The shank carrying the sockets is strapped to the ratchet wrench and a leather washer between them prevents rattling; \$3.

Westhaven—West Haven Mfg. Co., New Haven, Conn.—This adjustable alligator, with handles of the plier type, has a lug on one handle carrying a steel set screw, the end of which bears on a second lug on the other handle; the set screw is adjusted by means of a milled head and fixes the maximum opening of the jaws. Only one jaw is toothed; $6\frac{1}{2}$ -in., jaws open 1 in., nickel plated, 75 cents, with black handles and polished jaws, 65 cents; $8\frac{1}{2}$ -in., jaws open $1\frac{1}{2}$ in., nickel, \$1, black handles and polished jaws, 75 cents; dealers, $6\frac{1}{2}$ -in., \$6 and \$5.50 per doz.; $8\frac{1}{2}$ -in., \$6.75 and \$6 doz.

Marvel—Marvel Accessories Mfg. Co., West Sixth street and Lakeside avenue, Cleveland.—This is a drop-forged socket wrench adjustable to any size nut; in place of the usual socket, however, it has an adjustable chuck with two jaws which grip rounded nuts; with extension, \$3.

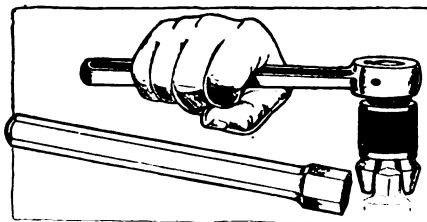
Starrett—The L. S. Starrett Co., Athol, Mass.—A wrench set for motor car service consists of a ratchet handle with reversible pawl, long extension, universal joint, drilling attachment with socket for square shank drills from $\frac{1}{8}$ - to $\frac{1}{4}$ -in., screwdriver with reversible end providing two bits in a single tool, and 28 sockets for nuts which will take almost any standard hex nut or bolt; a spark plug socket is included. In a polished wood case with hinged cover, \$15; without drilling attachments, \$12.

Eagle Claw — Mechanics' Tool Co., Rockford, Ill.—This is a combination wrench and plier having plier handles from which the jaws project at an angle of 45 deg. in some models and 90 deg. in others. The jaws are milled so that they will grip pipe, and the joint is of the slip type and provides three fulcrum points. No. 10, 7 in., 90 deg., 75 cents; No. 20, 7 in., 45 deg., 75 cents; No. 30, 7 in., 45 deg., 60 cents, light pattern; No. 40, 10 in., 90 deg., \$1; No. 50, 10 in., 45 deg., \$1; No. 60, 13 in., 90 deg., \$1.25.

Keystone—Keystone Mfg. Co., Buffalo.—Model K is an adjustable end opening wrench made in 5 sizes: 4 in.,

capacity $9/16$, 65 cents, \$7.80 per doz.; 6 in., capacity $3/4$, 65 cents, \$7.80 per doz.; 8 in., capacity $15/16$, 80 cents, \$9.60 per doz.; 10 in., capacity $1\frac{1}{8}$, \$1, \$12 per doz.; 12 in., capacity $1\frac{5}{16}$, \$1.25, \$15 per doz. Two finishes are supplied, No. 1, polished all over, and No. 2, polished head and enameled handle. Westcott S wrenches are made in the following 5 sizes; 6 in., opens to $3/4$ in., 60 cents, \$7.20 per doz.; 8 in., opens to 1 in., 75 cents, \$9 per doz.; 10 in., opens to $1\frac{1}{8}$ in., \$1, \$12 per doz.; 12 in., opens to $1\frac{1}{2}$ in., \$1.25, \$15 per doz.; 14 in., opens to 2 in., \$1.75, \$21 per doz. Westcott adjustable S pipe wrenches are made in the following sizes: 6 in., takes pipe from $1/8$ to $3/8$ in., 60 cents, \$7.20 per doz.; 8 in., takes pipe from $1/8$ to $3/4$ in., 75 cents, \$9 per doz.; 10 in., takes pipe from $1/8$ to 1 in., \$1, \$12 per doz.; 12 in., takes pipe from $1/8$ to $1\frac{1}{4}$ in., \$1.25, \$15 per doz.; 14 in., takes pipe from $1/8$ to $1\frac{1}{2}$ in., \$1.75, \$21 per doz. Both of the S wrenches have malleable iron handles and forged steel movable jaw.

Buffum—Buffum Tool Co., Louisiana, Mo.—Adjustable S wrenches, hardened steel screws, drop-forged jaws, malleable handles, 6 in., 60 cents; 8 in., 75 cents; 10 in., \$1; 12 in., \$1.25; 14 in., \$1.75. Eclipse angle-head adjustable jaw, drop-forged jaws and handle, tempered, in two finishes, polished and nickel. 6 in., 80 cents and \$1; 8 in., \$1 and \$1.25; 10 in., \$1.25 and \$1.50; 12 in., \$1.50 and \$2. Thin steel double-end wrenches, non-adjustable, angle-heads, in two finishes, polished and nickeled. 4 in., 25 and 40 cents; 5 in., 35 and 50 cents; 6 in., 45 and 60 cents; 7 in., 55 and 70 cents; 9 in., 65 and 85 cents. Never Slip alligators, single-ended, one jaw milled, slots in handle for small nuts and cap screws, made of sheet steel, $5\frac{3}{4}$ in. long, oil finish, 20 cents; polished, 25 cents; nickeled, 30 cents. Never Slip double-ended alligator, drop-forged, polished ends, one jaw milled, one end holds round rods $1/8$ to $3/4$ in. and the other end $1/4$ to 1, 10 in. long, 80 cents. Midget Never Slip alligator, double-ended, one jaw milled, $5\frac{3}{4}$ in. long, nickel plated, 50 cents. 8 in. double-ended alligators, with rethreading dies in shank, cutting $5/16$ -18, $3/8$ -18 and $1/2$ -13. Jaws take pipe $1/4$ to $3/4$, drop-forged, with polished ends, 75 cents. Engineers' wrenches, double-end, 15-deg. heads, in four finishes, unfinished, semi-finished, finished and nickel, 4, 5, 7, 9 and 12 in., from 10 cents unfinished and 35 cents nickeled, to 55 cents unfinished and \$1.30 nickeled. Set of 5 wrenches in cloth roll from \$1.75 unfinished to \$4 nickeled. Small adjustable wrench, drop-forged, 5 in., 20 cents with oil finish, and 30 cents nickeled. All steel monkey wrench, 5, 7 and 9 in., 25, 30 and 35 cents, plain finish; 30, 35 and 40 cents, semi-finished; 40, 45 and 50 cents, nickeled.



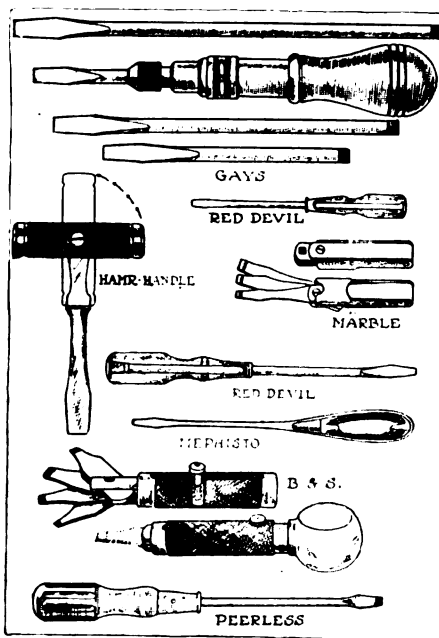
Marvel adjustable socket wrench which includes an extension piece

Screwdrivers

Keystone—Henry Disston & Sons, Philadelphia.—Electric, round hardwood handle, round shank, finished bright or blued, from 2 to 12 in. blades, \$3.30 to \$5.75 per dozen; same pattern and quality, bright blade but with rubberoid handle and nickel plated ferrule, \$4.70 to \$7.15 per dozen. Telegraph, round crucible steel blade, tempered, bright finish, nickel plated ferrule, hardwood handle, 2 to 12 in. blades, \$3.55 to \$5.90 per dozen; same pattern and quality but with nickel plated ferrule and rubberoid handle, \$4.95 to \$7.30 per dozen. Flat ebonized, hardwood handle, crucible steel blade with flat butt, nickel plated ferrule, 2 to 12 in. blade, \$2.65 to \$10.50 per dozen. No. 9, blade passing through handle with capped end, rivet through ferrule, handle and blade, round handle, rubberoid finish, 3 to 12 in. blades, \$5.70 to \$15.50 per dozen. Insulated, with hard rubber handle extending far down on blade, flat handle, brass ferrule, 3 to 12 in. blades, \$2.75 to \$8.90 per dozen. With apple handle and high finish, 2 to 12 in. blades, \$3.50 to \$10.75 per dozen.

Buffum Tool Co., Louisiana, Mo.—Eureka screwdriver, round blade riveted to handle through steel ferrule, fluted handles, blades 2½ to 12 in., 25 cents to \$1. Eclipse, same construction and price, ebony finish instead of mahogany. Monarch and Regal have round handles and mahogany and ebony finish; construction and prices are same as the Regal. Machinists' short, heavy type, 2-in. blade, 5½ in. over all, 40 cents; 3-in. blade, 7½ in. over all, 75 cents; 4-in. blade, 9½ in. over all, \$1. The handle is ebony finished, fluted and a rivet passes through ferrule, handle and blade. All-Steel, square shank, handle of cross shaped section, forged from one piece of steel. Full length, 9½ in., blade, 4¾ in., 75 cents. Non-shock, heavy type with square shank, handle of insulating material, 10 in. long, blade, 4¾ in., \$1.25. Popular, wood handle in steel handle-frame, blade, 2 to 12 in., 35 cents to \$1.

Gay—George E. Gay, Augusta, Me.—Ratchet type, round handle, right or left action, 3-in., 30 cents; 4-in., 35 cents; 5-in., 40 cents; 6-in., 50 cents; 8-in., 55 cents; 10-in., 60 cents; 12-in., 75 cents; 2-in. vest pocket size, 25 cents; dealers, 60 and 10 per cent. Ratchet type, flat handle, button on side of handle, right and left hand, 4-in., 75 cents; 5-in., 85 cents; 6-in., \$1; 8-in., \$1.12; 10-in., \$1.25; 12-in., \$1.36; dealers, 40 per cent. Union sets with round ratchet handle and four interchangeable blades, 2-, 4-, 6- and 8-in., \$1; dealers, \$8 per dozen. Plain screwdriver, embossed rosewood finish handle,



Variety in screwdrivers for the tool kit and the pocket

with steel pin through handle and blade, per dozen, 3-in., \$3; 4-in., \$3.60; 5-in., \$4.20; 6-in., \$4.80; 7-in., \$5.90; 8-in., \$6.50; 10-in., \$8; 12-in., \$10; dealers, 75 per cent. Combination type can be used as spiral, ratchet and rigid; with drill chuck and eight drills, \$1.50; dealers, \$12 per dozen; length, 11½ in. closed.

Hargrave—Cincinnati Tool Co., Norwood, Cincinnati, O.—No. 1 screwdriver has a round shank, hardwood handle, of chrome nickel steel, and cross ground tip to prevent slipping of screws. Blade passes almost entirely through handle. No. 2 is the same as No. 1 except that the blade is finished black and the tip is ground straight; either model, 2½-in. blade, \$3 per dozen; 3-in., \$3.50; 4-in., \$4.25; 5-in., \$5; 6-in., \$6; 7-in., \$7. Larger sizes up to 18-in., \$1 per dozen per inch of blade length. With open malleable iron handle with pressed-in tool steel blade; 5-in., \$1.15 per dozen; 6-in., \$1.25; 7-in., \$1.35; 8-in., \$1.50. Screwdriver brace bits, with cross ground tips, blade 7/16-in. wide, \$2.75 per dozen; ¾-in., \$2.50; 5/16-in., \$2.25, and ¼-in., \$2.

Yankee—North Bros. Mfg. Co., American street and Lehigh avenue, Philadelphia.—Made in ratchet, spiral, plain and magazine types. No. 10 ratchet, adjustment for right or left hand work made by slide moving lengthwise, 2-in. blade, 30 cents; 3-in., 35 cents; 4-in., 40 cents; 5-in., 45 cents; 6-in., 50 cents; 8-in., 60 cents; 10-in., 70 cents, and 12-in., 80 cents. No. 11, slide moving at right angles to blade, same sizes and prices. No. 12 is an extra substantial screwdriver for use in contracted places; has blade 1½ in. long, 5/16 diameter, length over all, 5¾ in.; 50 cents. No. 15 is similar to No. 10, but has slender blade with

knurled collar near handle so blade can be turned with thumb and finger; sizes 2 in. to 8 in., 30 to 60 cents. No. 65 magazine ratchet screwdriver has four blades which fit in a slot in the end of the shank and are kept in the hollow handle when not in use; ratchet mechanism for right or left hand; 6¾ in. over all, 80 cents; 11¼ in. over all, 90 cents. Spiral screwdrivers can be used either right or left hand and also as ratchet tools, right or left. There are several sizes but No. 31 is the heavy pattern, 17½ in. closed and 26¼ in. open; \$2. No. 30, 13½ in. and 19¼ in., \$1.25. Two bits with each tool. No. 60 magazine pocket screwdriver with four blades in hollow handle, 3-in. long when closed, diameter 5/8 in., weight 2 oz., made of steel, nickel plated, 55 cents.

Peerless—H. H. Mayhew Co., Shelburne Falls, Mass.—Peerless No. 510 has a blade with longitudinal corrugations at the tip to give a grip in the screw slot. Blade passes entirely through handle and has steel cap and is riveted in place. Made in all sizes from 1½- to 12-in. blade. Plain point screwdrivers, blade not extending through handle, made in all sizes. Machinists' screwdrivers, blade passing through handle, square shank, 3-, 4-, 5-, 6- and 8-in. blades; blades pass entirely through handle. Extra heavy machinists' type, 2½- to 5½-in. blades. Heavy square shank type with offset blades, 9½ in. long. Line also includes many other sizes and types.

Stanley—Stanley Rule & Level Co., New Britain, Conn.—Hurwood screwdriver with blade, shank and head in one piece, passing through wood handle riveted in place, made in two forms, one with metal head at top and one with head countersunk and insulated. Made in 14 sizes, blades 2½ to 30 in., \$2.40 to \$19.20 per dozen. Also made in a number of special models. Defiance screwdrivers, round steel blades, squared ends riveted into handles, twelve sizes, 2½ to 18 in. blades, \$1.92 to \$9 per dozen. Line also includes flat blade screwdrivers.

Elmore—Chapin-Stephens Co., Pine Meadow, Conn.—This line includes screwdrivers for all services. The Indestructible has a heavy shank which extends through the handle and is riveted through the ferrule and headed over at the top. Sizes, 1½ to 12 in., \$3.50 to \$12 per dozen; with insulated handle and top, same price. Machinists' type, square shank extending through handle for heavy service, 1½ to 12 in. blades, \$3.50 to \$12 per dozen. Extra heavy, square shank, for use with wrench, 2½ in. blade, \$5; 3½ in., \$9; 4½ in., \$12; 5½ in., \$18 per dozen; made with and without insulation on top and also with round shank. No. 1409 and 1405 are very short and heavy; former 8 in. long, 3½ in. blade of 7/16 in. steel, insulated top, \$9

per dozen. Indestructible Baby, 5 in. long, 1½ in. blade, \$3.50 per dozen. Drop forged screwdrivers, inset wood handles, from 2 to 12 in. blades, \$4.25 to \$12 per dozen; also made in heavy, square shank type, with 4, 5 and 6 in. blades, at \$10, \$12 and \$14 per dozen.

B. & S.—Billings & Spencer Co., Hartford, Conn.—One-piece drop forged screwdrivers are made in nine sizes from 5 to 18 in. Handles are of cross shape cross section; \$3 to \$11 per dozen. An extra heavy model with square shank to take wrench is 9½ and 10½ in. long, \$8 and \$10 per dozen. Magazine screwdriver, model Q, has four blades sliding into handle; length closed, 3¾ in. Finished in nickel with steel or rosewood handle, 50 cents; larger size, 8½ in. long, with five blades, \$24 per dozen. A machinists' screwdriver, spring tempered with hard wood handle, 7½ to 12 in. over all, \$4 to \$6 per dozen.

Hamr-Handl — Crescent Tool Co., Jamestown, N. Y.—This screwdriver has pivoted handle, hammer head shape, which can be turned in line with the blade and is held in either position by a strong spring. Blade is drop forged and hardened and handle of knurled steel. Sizes, 4-, 5- and 6-in. blades. Prices, \$9 per dozen; dealers, \$6 per dozen.

Red Devil—Smith & Hemenway Co., Inc., 150 Chambers street, New York.—Red Devil round rod screwdriver with blade extending through handle, steel ferrule, rubberoid finished handle, is made in eight sizes from 2- to 12-in. blades; prices, 25 to 95 cents each; dealers, \$2.40 to \$9.60 per dozen. Red Devil square rod screwdriver, square shank, blade extending through handle, steel ferrule, the blades 2 to 8 in. long. Prices, 30 to 70 cents each; dealers, \$2.90 to \$6.60 per dozen. Red Devil never-turn, blade riveted through steel ferrule and handle, large diameter handles of polished hard wood, blades 2 to 12 in. long. Prices, 17 to 60 cents each; dealers, \$1.70 to \$6 per dozen.

Mephisto—W. A. Ives Mfg. Co., Wallingford, Conn.—This screwdriver has a round shank and a large round handle of black composition, around which extends a rib formed integral with the shank; the rib gives a grip and permits extra leverage to be exerted; 3-in., 40 cents; 4-in., 50 cents; 5-in., 60 cents; 6-in., 75 cents; 7-in., 85 cents; 8-in., \$1; 9-in., \$1.15; 10-in., \$1.25; 12-in., \$1.50. The blade is high-grade steel, which permits the points to be ground small enough for small screws without weakening it.

Wright—Wright Wrench & Forging Co., Canton, O.—Solid drop forged screwdriver, blade and handle one piece, for heavy service, made in one size, handle of cross shaped section and blade

with square shank for wrench application. Length of blade, 5 in; shank, 9/16 square; width of blade, ¾ in; mottled, \$10 per dozen; polished, \$12 per dozen. Dealers, about 50 per cent.

Bridgeport Hardware Mfg. Corp., 461 Iranistan avenue, Bridgeport, Conn.—Screwdrivers are made in practically all types, plain, spiral and ratchet, and in all sizes. Retail prices range from 5 cents to \$1.50 and dealers from 35 cents to \$4 per dozen.

Marble—Marble Arms & Mfg. Co., Gladstone, Mich.—These are pocket screwdrivers, magazine type, three blades

sliding into a metal handle and locking when pulled out separately. Size, open, 4½ in., closed 3 in; larger size, open 5¼ in., closed 3½ in. A Prest-O-Lite key is formed in the handle. Either size, 50 cents; dealers, \$4 per dozen.

Marcy—Marcy Tool Works, Putnam, Conn.—Screwdrivers are in four models; No. 27, with round shank with ordinary attachment to handle; No. 31, with round shank extending through handle; No. 127, heavy type, with square shank for wrench, shank fastened in handle in ordinary way, and No. 131, square shank type, with shank extending through handle; all are hammer forged and tempered.

To Make the Car Shine Body Polishes

Marvel-Mist—Marvel-Mist Mfg. Co., Brooklyn, N. Y.—A liquid cleaner and polish combined, used in place of water for washing the car, applied with a spraying pump. Midget outfit, with atomizer and cloth, \$1. Giant outfit, larger size, \$1.25; pt. can, 75 cents; qt., \$1; ½-gal., \$1.75; gal., \$2.75; 5-gal. garage outfit, \$12.50.

J. C. Paul & Co., 130 North Fifth avenue, Chicago.—Imperial cleaner is a liquid polish for wood, metal and glass surfaces; gal. cans, \$1; ½ dozen in a crate, \$9 per dozen; dealers, \$6 per dozen. Ivory polish for varnished wood surfaces, ¼-pt. bottles, 15 cents, 6 dozen in a case, \$1 per dozen, \$9 per gross; ½-pt. bottles, 25 cents, 3 dozen in a case, \$1.75 per dozen, \$15 per gross; 1-pt. bottles, 40 cents, 2 dozen in a case, \$3 per dozen, \$25 per gross; 1-qt. bottles, 75 cents, 1 dozen in a case, \$5 per dozen, \$45 per gross; ½-gal. cans, \$1.25, 1 dozen in a case, \$8 per dozen; dealers, \$6.75 per dozen; gal. cans, \$2.25, ½ dozen in a case, \$14 per dozen; dealers, \$12.20 per dozen.

Matchless Liquid Gloss—Standard Oil Co. of New York, New York.—A liquid body polish put up in screw-top cans with detachable spout; 5-gal. cans, two per case, \$9.50 per case; dealers, \$5.40. single 5-gal. cans, \$4.95, dealers \$2.85; 1-gal. cans, six per case, dealers, \$4.15; 1-gal. cans, \$1.40 each, dealers 80 cents; ½-gal. cans, twelve per case, 80 cents per can, dealers \$5.05 per case; quarts, twelve per case, 50 cents each, dealers \$2.85 per case; pints, twenty-four per case, 30 cents each, dealers \$3.75 per case; ½-pt. thirty-six per case, 20 cents each, dealers \$3.85 per case; barrels, 50 cents per gallon, dealers 40 cents per gallon; ½-bbls., 52 cents per gallon, deal-

ers 42 cents per gallon. Pints are also put up in cases of twelve and ½-pt. in cases of twelve and twenty-four.

Star-Clean—Alder Chemical Co., Mt. Vernon, N. Y.—This body polish is put up in bottles at 50 cents and \$1. It is stated the small bottle will clean 240 sq. ft. and the large bottle 800 sq. ft. Dealers, 25 per cent; jobbers, 40 per cent.

Johnson's Cleaner and Prepared Wax—S. C. Johnson & Son, Racine, Wis.—A cleaner designed to prepare the varnish for polishing by removing dirt and discoloration. The prepared wax is then applied and rubbed to a finish. Cleaner, 25 cents per can, \$3 per doz.; dealers, \$2 per dozen. Prepared wax, 25 cents a can; \$3 per dozen; dealers, \$2 per dozen. The was is packed in attractively lithographed counter display cartons.

Glover—E. O. Glover, 142 Nectarine street, Philadelphia.—This body polish is put up in 8-oz. packages, enough to polish one car, \$1; dealers, 30 per cent.

Noxal—Noxal Polish Mfg. Co., 1238 Belmont avenue, Philadelphia.—A liquid body polish, put up in pint bottles, 2 dozen in a case, \$4 per dozen; qt. bottles, 1 dozen in a case, \$8 per dozen; gal., \$2.50 each; jobbers, 20 per cent. Noxal liquid burnisher for renovating hoods when varnish is cracked and for removing oil and tar spots and mud stains, pt. cans, 3 dozen in a case, \$6 per dozen; qt. cans, 1 dozen in a case, \$10 per dozen; gal. cans, \$3 each. Jobbers, 20 per cent.

Liquid Veneer—Buffalo Specialty Co., Buffalo, N. Y.—This body polish, which is put up in liquid form, is designed to

remove spots and dirt from the varnished surfaces of the car without leaving scratches or other marks; at the same time it leaves a high gloss and a hard surface which sheds the dust. Liquid Veneer is put up in bottles at 25 cents, dealers \$2 per doz.; larger size, 50 cents, dealers \$4 per doz.; \$1 size, dealers \$8.40 per doz.; \$1.75 size, dealers \$1.20 ea.; \$3 size, the largest, dealers, \$2.10 ea.

Perfection—Perfection Polish Co., Waverly, N. Y.—A body polish to be applied immediately after washing when there is no grit on the varnish; 4-oz. bottles, 25 cents each; dealers, \$2 per dozen; \$22.50 per gross; 10-oz. bottles, 50 cents each; dealers, \$4 per dozen; \$45 per gross.

Old English Wax—A. S. Boyle Co., 1934 Indiana avenue, Cincinnati, O.—A polishing wax compound which is rubbed over the varnish in a hard film. Put up in 1, 2, 4 and 8-lb. cans at 50 cents per lb. and in 5-oz. tins at 25 cents.

Auto-Klean—John Lucas & Co., Inc., 322 Race street, Philadelphia.—A liquid body polish put up in ½-pt. at 35 cents; pts., 60 cents; qts., \$1; gals., \$2.50. Dealers, 50 per cent.

Uncle Hiram's Brighten-All—New Method Varnish Co., Elmira, N. Y.—A body cleaner and polisher put up in 4½-oz. bottles at 25 cents; \$3 per dozen; \$36 per gross; 12-oz., 50 cents each, \$6 per dozen, \$72 per gross; quarts, \$1; ½-gal., 75 cents each. Dealers, 50 per cent.

Rexine—The Rexine Co., Sheboygan, Wis.—Rexine is a combined cleaner and polish for varnish, put up in 6-oz. bottles, 25 cents each; dealers, \$4 per case of 24; 16-oz. bottles, 50 cents each; dealers, \$4 per case of 12; 32-oz. bottles, \$1 each; dealers, \$8 per case of 12; ½-gal., \$1.50 each; dealers, \$4 per case of 4; gals., \$2.50 each; dealers, \$3.33 per case of 2.

Rub-Less—Feiner Chemical Mfg. Co., 241 Mill street, Springfield, Mass.—A non-inflammable, non-settling liquid polish for any metal. Put up in screw top cans. Gal., \$1.50; qt., \$.50; pt., \$.35; ½-pt., \$.25; ¼-pt., \$.10. Packed in cases of 1 doz. gal. cans; 2 and 4 doz. qts.; 3 and 6 doz. pts.; 4 and 8 doz. ½-pts., and 12 doz. ¼-pts. Dealers, 40 and 10 per cent.

New Life—H. M. Hallett & Co., Ludington, Mich.—A liquid body polish said to be made of the same gums and oils used in high-grade varnish. Gals., \$3; qts., \$1; 12-oz., 50 cents; 5-oz., 25 cents; dealers, 33⅓ per cent.

Peerless—Columbus Varnish Co., Columbus, O.—A liquid body polish put up in cans; gals., \$3.75; ½-gals., \$1.98; qts., \$1.04; pts., 54 cents. Liquid wax finish, gals., \$3.75; ½-gals., \$1.98; qts., \$1.04; pts., 54 cents. Dealers, 33⅓ per cent.

Eberson's—Eberson-Lindsley Paint Co., 19th and Morgan streets., St. Louis, Mo.—A polishing wax in 5-oz. cans, 25 cents each; 1-lb. cans, 50 cents. Liquid body polish, ½-pts., 30 cents; pts., 50 cents; qts., 80 cents; ½-gals., \$1.55; gals., \$3.

Auto-Kleen—Simons Mfg. Co., 2121 Michigan avenue, Chicago.—Auto Kleen and Simons polish paste are used in conjunction; the paste is applied, leaving a film on the surface, which is polished to a hard surface with Auto Kleen. Put up in cans, 50 cents each; one set for \$1; 12 sets in a case. Dealers, 33⅓ per cent.

Dumaco—J. E. Dulin Mfg. Co., 460 S. Grant street, Springfield, Mo.—A liquid polish to be used each time a car is washed. Put up in 30-oz. tin cans at \$1. Dealers, \$4 a doz. in 1-doz. lots, and \$3.50 per doz. in 6-doz. lots.

Red Cross—National Cement & Rubber Co., Toledo—Liquid polish put up in screw top cans for any metals. ½-pt., \$.20; pt., \$.30; qt., \$.50; ½-gal., \$.75; gal., \$1.25.

Brilliant—Brilliant Products Co., 13 Park Row, New York.—A washing and polishing liquid for cleaning the car without water and for preventing rusting of running gear and other metal parts. Pts., 50 cents; qts., 75 cents; gals., \$2.50. Discount according to quantity.

S. & B.—Uno Mfg. Co., Inc., 6415 Ravenswood park, East, Chicago.—A polish for wood and leather which gives a wax finish when used with water. Can be applied with a spray gun, when it dries hard. Pts., 2 dozen in a case, 50 cents each; \$6 per dozen; qts., 1 dozen in a case, 75 cents each; \$9 per dozen; gals., 6 in a case, \$2.50 each; \$30 per dozen.

Rex Wood Oil—Armiger Chemical Co., 2155 Austin avenue, Chicago.—This is a non-explosive polish for highly-finished wood surfaces and is packed in ½-pt. cans at 15 cents; pt. 25 cents; qt., 45 cents; ½ gal., 75 cents; gal., \$1.25. Dealers, 30 to 40 per cent. Gallon cans are packed ½ dozen in a case; ½-gal. one dozen in a case; qt. cans one dozen in a case, and pt. cans one or two dozen in a case.

Auto-Newer—Pimbley Paint & Glass Co., 213 South Sixth street, St. Joseph, Mo.—A liquid body polish put up in three sizes which retail at 50 cents, \$1, and \$2, respectively. Dealers, \$3, \$6 and \$12 per dozen.

Pioneer—Northwestern Chemical Co., Marietta, O.—This liquid polish is to be applied after washing the car; put up in bottles, 6-oz., 25 cents; 16-oz., 50 cents. Cases of 12 6-oz., \$3; 12-oz., \$6.

Rapid—T. R. Shannon, Hartford, Conn.—This liquid polish is put up in 12-oz. bottles at 50 cents; dealers, \$4 per dozen, packed in cases of 2 dozen. Quart bottles, \$1; dealers, \$8 per dozen, packed in cases of 1 dozen. One-gal. jugs, \$3; dealers, \$24 per dozen, packed in cases of four.

Slikup—N. B. Arnold, 1 Sigourney street, Brooklyn, N. Y.—A liquid body polish which rubs in dry and leaves no greasy film, put up in pint cans at 30 cents.

Beacon Re Nu—Cincinnati Oil Works, 525 Eggleston avenue, Cincinnati, O.—A liquid polish put up in cans; 1-gal., \$30 per dozen; ½-gal., \$21 per dozen; qts., \$12 per dozen; pts., \$9 per dozen; ½-pts., \$6 per dozen. Dealers, orders less than \$50, 35 per cent; over \$50, 45 per cent.

U-Sav-Your—U-Sav-Your Mfg. Co., Warren, Mass.—A combined cleaner and polish designed to clean the car without the use of water; said to contain no paraffine or wax. Put up in bottles; 4-oz., 25 cents; 8-oz., 35 cents; 16-oz., 50 cents; 32-oz., \$1.

Rie-Nie—Durkee-Atwood Co., 707 Third street, N., Minneapolis.—This liquid combined body polish and cleaner is put up in ½-pt., 25 cents; qt., 60 cents; gal., \$2; dealers, 33⅓ per cent.

Welco—Wm. E. Lee Mfg. & Chemical Co., 622 Cypress avenue, Kansas City, Mo.—A liquid polish to be mixed with water and applied with a sponge or soft cloth and polished with a dry cloth. Pts. 75 cents; ½-gals., \$1.50; gals., \$2.50.

Velvet—P. Sutherland & Co., 232 Milk street, Boston.—A body polishing cream put up in bottles and cans. Pint bottle, 50 cents; \$6 per dozen; qt., \$1; \$12 per dozen; ½-gal. cans, \$2 each; gal., \$3. Dealers, 33⅓ per cent; jobbers, 50 per cent.

Protexacar—Frey Mfg. Co., 1514 Michigan avenue, Chicago.—A paste polish for varnished surfaces said to protect the finish and to make frequent polishing unnecessary. Put up in ¼-lb. cans at 50 cents and ½-lb. cans at \$1. Dealers, \$4.20 and \$8.40 per dozen cans.

Rub-On—Rub-On Mfg. Co., Inc., 87 Brayton street, Buffalo, N. Y.—Colorless liquid body polish put up in cans. Trial size, 25 cents; qt., sufficient for a large car, \$1; gal., \$3.50. Dealers, 33⅓ per cent; jobbers, 33⅓, 20 and 10 per cent.

Marvin—Imperial Oil Co., 3124 Locust street, St. Louis.—A liquid body polish of light consistency which does not require shaking; put up in cans of 1 qt., ½ gal. and gal.

Metal Polish

Frank Miller Co., 349 West 26th street, New York—A non-inflammable liquid polish for metal and glass put up in screw top cans. Prices, 5-oz., \$1.10, \$10.80 per gross; 1/2-pt., \$1.15, \$16.20 per gross; pt., \$1.25, \$27 per gross; qt., \$1.40, \$47.70 per gross; 1/2-gal., \$1.65 to \$1.75, \$6 per doz.; gal., \$1.25 ea., \$10.80 per doz; dealers, 25 per cent.

Baum's—Baum's Castorine Co., Rome, N. Y.—A non-inflammable liquid polish put up in bail-handled cans with screw top. Pt., \$1.25, \$24 per gross, 1 doz. in a case; qt., \$1.50, \$42 per gross, 1 doz. in a case; gal., \$1.25 ea., \$10 per doz., 1/2 doz. in a case. Also put up in paste form. Dealers, 50 per cent.

Oxford—Crowell Chemical Co., 74 Cortlandt street, New York—Liquid polish for all metals, put up in 1/2-pt. cans at \$1.15; pt. cans, \$1.25; qts., \$1.50; 1/2-gal., \$1; gal., \$1.50.

Marvin—Imperial Oil Co., 3124 Locust street, St. Louis.—A cream liquid polish for all metals, put up in cans containing 1/4-pt., 1/2-pt., qts., 1/2-gal. and gal.

Schein—John F. Bornschein & Co., 2351 Indiana avenue, Chicago.—A liquid polish put up in 12-oz., 1-qt., 1/2-gal. and 1-gal.

J. C. Paul & Co., Chicago.—Burnishine is a liquid metal polish put up in cans: 1/4 pt. 10 cents, 6 dozen in a case, 75 cents per dozen, dealers \$8 per gross; 1/2 pt., 15 cents, 6 dozen in a case, \$1.25 per dozen, dealers \$12 per gross; pts., 25 cents, 4 dozen in a case, \$2 per dozen, dealers \$19.20 per gross; qt., 40 cents, 2 dozen in a case, \$3.50 per dozen, dealers \$33.60 per gross; 1/2 gal., 60 cents, 1 dozen in a case, \$6 per dozen, dealers \$57.60 per gross; gal., \$1, 1/2 dozen in a case, \$10 per dozen, dealers \$96 per gross. Burnishine is also put up in paste form, 3-oz. boxes, 10 cents, 1 gross in a case, 50 cents per dozen, dealers \$3.60 per gross; 1/2-lb. boxes, 25 cents, 3 dozen in a case, \$1.25 per dozen, dealers \$10.80 per gross; 1-lb. boxes, 40 cents, 2 dozen in a case, \$2 per dozen, dealers \$19.20 per gross; 5-lb. boxes, \$1, 1 dozen in a case, \$10 per dozen, dealers \$7.20 per dozen; 10-lb. boxes, \$1.75, 1/2 dozen in a case, \$18 per dozen, dealers \$13.20 per dozen. Silver rouge for fine plated surfaces, 10 cents per box, 12 dozen in a case, 75 cents per dozen, dealers \$7.20 per gross. Dragon brand liquid metal polish: 1/2-pt. cans, 15 cents, 6 dozen in a case, 75 cents per dozen, dealers \$8 per gross; 1-pt. cans, 25 cents, 4 dozen in a case, \$1.50 per dozen, dealers \$14.40 per gross; qt. cans, 40 cents, 2 dozen in a

case, \$2.25 per dozen, dealers \$24 per gross; 1/2-gal. cans, 60 cents, 1 dozen in a case, \$3.50 per dozen, dealers \$36 per gross; gal. cans, \$1, 1/2 dozen in a case, \$6 per dozen, dealers \$60 per gross. Paul's liquid putz, paste putz and cream silver polish also are manufactured.

Brilliant—F. M. Trafton Co., 176 Federal street, Boston.—A metal polish put up in liquid and paste forms. Liquid put up in 1/6-pt. cans, packed 1 gross in a case, \$16 per gross; 4-oz. bottles, 4 dozen in a case, \$25 per gross; 1/2-pt. cans, 3 dozen in a case, \$36 per gross; pt. cans, 2 dozen in a case, \$5.80 per dozen; qt. cans, 1 dozen in a case, \$11 per dozen; 1/2-gal. cans, 1 dozen in a case, \$20 per dozen; gal. cans, 1/2 dozen in a case, \$36 per dozen. Discount, 60 per cent. In paste form, 3-oz. boxes, 1 gross in a case, \$7.50 per gross; 1/2-lb. boxes, 3 dozen in a case, \$21.60 per gross; 1-lb. boxes, 2 dozen in a case, \$36 per gross; 5-lb. pails, 1 dozen in a case, \$15 per dozen. Dealers, 30 per cent.

Slikup—N. B. Arnold, 1 Sigourney street, Brooklyn, N. Y.—A white cream polish said to stand indefinitely without forming a sediment, for highly finished surfaces. 1/2-pt. cans, 15 cents; pt. cans, 20 cents; qts., 35 cents; 1/2-gal., 60 cents, gal., \$1. A silver plating solution for brass, copper or bronze is put up in 8-oz. bottles, 75 cents.

Flash—Flash Chemical Co., Kendall square, Boston.—This liquid polish is put up in cans, 1/2-pt., 15 cents; \$10.80 per gross, packed 1 or 3 dozen in a case; pt., 25 cents; \$1.80 per dozen, packed 1 dozen in a case; qt., 40 cents; \$3.25 per dozen, packed 1 dozen in a case; gal., \$1.50; \$10 per dozen, packed 6 in a case. Perfection metal polish, white, black or red, \$1 per gal., \$8.50 per dozen gal. Flash cream silver polish for highly finished surfaces, small jars, 10 cents; \$10.80 per gross, packed 3 dozen in a case; 8-oz. jar, 25 cents; \$18 per gross, packed 1 and 3 dozen in a case; 32-oz. jars, 75 cents; \$4 per dozen, packed 1 dozen in a case; 1-gal. pails, \$2.50; \$12 per dozen, packed 6 in a case.

Whiz—R. M. Hollingshead Co., Camden, N. J.—A liquid polish for any metal surface. Put up in 1/4-pt., 1/2-pt., pt., qt., 1/2-gal. and gal. lithographed cans.

S. & B.—Uno Mfg. Co., Inc., 6415 East Ravenswood park, Chicago.—Polishing paste for brass and nickel, put up in tins; 1-lb., 3 dozen in a case, \$3 per dozen; 25 cents each. Speedway metal polish for rapid work, in cans, made in inflammable and non-inflammable types; pts., 2 dozen in a case, \$3 per dozen; 25 cents each; qts., 1 dozen in a case, \$4.20 per dozen; 35 cents each; gals., 1/2 dozen in a case, \$12 per dozen; \$1 each.

Special polish for soft metals in lamps, horns, windshields, etc., put up in cans, pts., 2 dozen in a case, \$3; 25 cents each; qts., 1 dozen in a case, \$4.20 per dozen; 35 cents each; gals., 6 in a case, \$12 per dozen; \$1 each.

Ezy-Brite—R. E. Rodriguez, 56 Warren street, New York.—A polishing cream put up in bottles; 8-oz., 50 cents; 16-oz., 75 cents; 24-oz., \$1; 32-oz., \$1.25. Also good for cleaning leather and glass.

Army and Navy, U-No and Scourer.—The Grady Mfg. Co., 250 Ely avenue, Long Island City, N. Y.—Army and Navy is a liquid metal polish put up in cans, 1/4-pts., \$5; 1/2-pts., \$9; pts., \$16; qts., \$24 per gross; 1/2-gal., \$4, and gal., \$7.20 per dozen. U-No paste polish in 3-oz. tin boxes, \$4; 1/2-lb., \$10; 1-lb., \$18 per gross; 5-lb. pails, \$7.20 per dozen; Scourer paste, tin boxes, 3-oz., \$4.80; 1/2-lb., \$14.40; 1-lb., \$24 per gross; 5-lb. pails, \$9 per dozen. Scourer liquid polish for very fine metal surfaces in cans, 1/4-pts., \$6; 1/2-pts., \$10.80; pts., \$20; qts., \$32 per gross; 1/2-gal., \$5, and gal., \$9 per dozen.

Morganbrite—Morgan Mfg. Co., Newport, R. I.—A brass polish made in inflammable and non-inflammable types; in cans; 2 oz., 10 cents; 1/4 pt., 15 cents; 1/2 pt., 25 cents; pt., 35 cents; qt., 50 cents; 1/2 gal., 80 cents; gal., \$1.50; dealers, 50 per cent.

Solarine—Solarine Co., 136 Liberty street, New York.—A liquid metal polish suitable for highly-finished surfaces; put up in cans; 1/6-pt., 1 gross to a case, \$9 per gross, 75 cents per dozen; 1/2-pt., 1/4- and 1/2-gross cases, \$18 per gross, \$1.50 per dozen; pts., 1/4-gross to the case, \$32 per gross, \$2.67 per dozen; qt., 1 dozen to a case, \$54 per gross, \$4.50 per dozen; 1/2-gal., 1/2 dozen in a case, \$90 per gross, \$7.50 per dozen; gal., 1/2 dozen in a case, \$162 per gross, \$13.50 per dozen.

Best of All—Essex Paint Works, Essex, Conn.—A polish in inflammable and non-inflammable types at the same price. In cans; 8-oz., 20 cents; 16-oz., 30 cents; 1-qt., 50 cents; 2-qt., 85 cents; 1-gal., \$1.50. Best Ever paste polish, in tin boxes, 3-oz., \$7.20; 6-oz., \$14.40; 12-oz., \$28.80; 16-oz., \$36 per gross. Best Ever cream polish for silver and glass, screw top, 8-oz. glass jars, \$36 per gross. Dealers, 50 per cent.

A. S. K.—Dayton Polish Co., Bacon street, Dayton, O.—A waterproof liquid polish for brass or nickel, will polish under water. Put up in cans.

E-Z-Q and Radium—Bobrick Chemical Co., 111 South Garey street, Los Angeles.

—E-Z-Q polish is for brass. Radium polish is for fine nickel and silver surfaces and is non-inflammable.

Pioneer—Northwestern Chemical Co., Marietta, O.—A liquid polish especially for nickel and other plating, put up in cans at 35 cents. Cans are packed 12 to the case, \$4.20 per case, and three cases are packed in a large shipping case. Weight of shipping case, 50 lbs. Sil-Ver-Ol is a silver plating solution used in the same way as liquid metal polish; put up in ½-pt. cans, 75 cents. Cans are packed 12 to the case, \$9 per case; three cases packed in large shipping case. Weight of shipping case, 34 lbs.

Polishine and Stand Up—Cleaner Mfg. Co., 2842 Olive street, St. Louis, Mo.—Polishine is a liquid metal polish put up in screw-top cans; 1/6 pt., \$15, and ½ pt., \$36 per gross; 1 pt., \$5.40; qt., \$9; ½ gal., \$15; gal., \$24 per dozen. In pomade form, 1-oz. tins, \$7.20; 3-oz., \$15; 8-oz., \$36 per gross; 1 lb., \$6; 5 lb., \$21; 10 lb., \$36 per dozen. The King silver powder, 3-oz. boxes, \$15; 1-lb. boxes, \$120 per gross. Dealers, from 40 to 60 per cent, according to quantity.

Beacon—Cincinnati Oil Works, 525 Eggleston avenue, Cincinnati, O.—A liquid polish for finely-finished metal surfaces, put up in cans; gals., \$12 per dozen; ½-gal., \$7.80 per dozen; qts., \$4.80 per dozen; pts., \$3; ½-pts., \$1.80. Dealers, orders less than \$50, 30 per cent; over \$50, 40 per cent.

Rex—Armiger Chemical Co., 2155 Austin avenue, Chicago.—Rex is a liquid metal polish for fine metal surfaces, put up in cans; ½-pts., 3 dozen in a case, 15 cents per can; pts., 2 dozen in a case, 25 cents; qts., 1 dozen in a case, 45 cents; ½-gal., 1 dozen in case, 75 cents; gal., 6 in a case, \$1.25 each; dealers, 30 to 40 per cent. Also put up in cream form for removing heavy tarnish.

Noxal—Noxal Polish Mfg. Co., 1238 Belmont avenue, Philadelphia.—A liquid metal polish for highly-finished surfaces, put up in pint cans, \$18 per gross; qt. cans, \$36 per gross, and gals., \$9 per dozen; jobbers, 20 per cent.

Acme—Acme Polish Co., Ltd., 71 South 12th street, Pittsburgh.—This polish is put up in both liquid and paste forms, the liquid in cans and the paste in tin boxes. Liquid, \$1 per gal.; paste, 20 cents per lb.

Shi-Nite—Adams & Elting Co., 716 Washington boulevard, Chicago.—This metal polish is made in both inflammable and non-inflammable, in 5-oz. cans at 20 cents; 8-oz., 25 cents; 12-oz., 35 cents; qt., 50 cents; ½-gal., 75 cents; gal., \$1.25. Dealers, 33½ per cent.

Dielectric—Dielectric Mfg. Co., Vandeventer and Duncan avenue, St. Louis.—A liquid polish for brass, put up in cans. ¼-pt., 90 cents per dozen; 1-pt., 12 cents each; qt., 20 cents; gal., 60 cents. Dielectric nickel polish, ½-pt., 45 cents per dozen; pt., 6 cents each; qt., 10 cents; gal., 30 cents.

Putz—W. W. Reid Mfg. Co., Boston.—This metal polish is put up in both liquid and paste forms. Liquid, ½-pt. cans, 36 to the case, \$12 per gross; pt., 24 to the case, \$24 per gross; qt., 24 to the case, \$3 per dozen; gal., 12 to the case, \$9.60 per dozen. Putz pomade, 1-lb. boxes, 72 boxes to the case, \$20 per gross.

Hy-Po—Adams & Elting Co., 716 Washington boulevard, Chicago.—This liquid polish is put up in cans; 12-oz., 50 cents; qt., \$1; ½-gal., \$1.50; gal., \$2.75. Dealers, 33½ per cent.

Rie-Nie—Durkee-Atwood Co., 707 Third street, N., Minneapolis.—A liquid metal polish for all round use which will not settle; put up in pts., 25 cents; qts.,

40 cents; ½-gal., 60 cents; gal., \$1; dealers, 33½ per cent. A special polish for nickel or silver is put up in pints, quarts and gallons at the same prices and discounts.

Brilliant—Brilliant Products Co., 13 Park Row, New York.—A non-inflammable polish suitable for finely finished surfaces; will not injure wood work. Put up in ½-pts, 15 cents; pts, 25 cents; qts., 40 cents; ½ gals., 70 cents; gals., \$1.25. Discount according to quantity.

Rexine—The Rexine Co., Sheboygan, Wis.—A liquid non-explosive polish to be used on hot or cold metals. In ½-pt. cans, 15 cents each; dealers, \$7.20 per case of 72; qt. cans, 40 cents each; dealers, \$6 per case of 24; gals., \$1 each; dealers, \$4.50 per case of 6.

Welco—Wm. E. Lee Mfg. & Chemical Co., 622 Cypress avenue, Kansas City, Mo.—A cream emulsion put up in pint cans, 25 cents; ½-gal., 75 cents; gal., \$1. Welco silver plating compound for brass or copper surfaces, \$1 per bottle; dealers, \$9 per dozen.

Piston Rings

Leak Proof—McQuay-Norris Mfg. Co., St. Louis.—This is a concentric cast iron, ground two-piece ring, each section consisting of a complete circle and each having a diagonal split. Both rings are L-shape cross section and the two parts form a single ring of rectangular section. Joints are set opposite and are held in position by dowel pins. The ring was designed for elasticity, to meet the conditions usually found in warped or worn cylinders. All sizes are made and the price is uniform, \$1.50 per ring, except on the Pacific Coast, where the price is \$2.

Micro—E. S. Michener, New Castle, Pa.—A compound ring, the outer channel member having a lapped joint and a smaller ring with a square-cut joint fitting in the channel. Both rings bear on cylinder, the inner ring having two bearing surfaces, one above and one below the channel. The main ring is eccentric. Rings will spring further than is necessary to put them on pistons without danger of breakage. Up to 5½ x 5/16 in., \$1.50 each.

Burd—Burd High Compression Ring Co., Rockford, Ill.—This concentric cast iron piston ring has a diagonal joint protected by a guard made of soft alloy steel. On both sides of the joint the ring is cut away at top and bottom, leaving a central tongue on each side of the split. The cut-away portion is ex-

actly filled by the guard, which is H-shaped, the long parallel members extending on each side of the tongues and the cross-bar coming directly under the split and fitting in a recess. Guards are ground to an exact fit with the particular rings to which they belong. Rings are ground on all the working surfaces. Prices run from \$1 for all sizes up to 2½-in. to \$2.25 for 6½- to 7½-in.; dealers, 30 to 40 per cent, according to quantity.

3-in-1—Hebert Mfg. Co., Franklin, N. H.—A three-piece ring, the inner or spring ring being an individual casting beveled grooved, and two outer rings with beveled edges to correspond with the beveling of the inner ring. Only the outer rings touch the cylinder, and they are cut from soft cast iron cylinders. The joints are set at equal distances apart. Made in all sizes.

Pressure-Proof—Pressure Proof Piston Ring Co., 3368 Washington street, Jamaica Plain, Boston.—A compound ring with internal expander. The main ring is beveled on the inside to leave space for the expander and has a groove in its periphery for a small ring which bears on the cylinder wall and is locked in the main ring because the groove is smaller at the top than at the bottom. All the joints are square cut. The pressure-proof Junior is a one-piece ring with an internal expander and a diagonal joint. Both rings are made in sizes

from 2½ to 6 in. and in all widths from 3/16 to ¾; wider at extra cost. Prices from 96 cents to \$1.92.

Davidson Multiple—Davidson's Repair Shop, 227 West 64th street, New York.—Two concentric cast iron rings are placed one inside the other with stepped joints at 90 deg., held by a pin. All surfaces are ground except the inner surface of the inner ring. Motor car sizes, \$2 each; dealers, 25, 20 and 20 per cent.

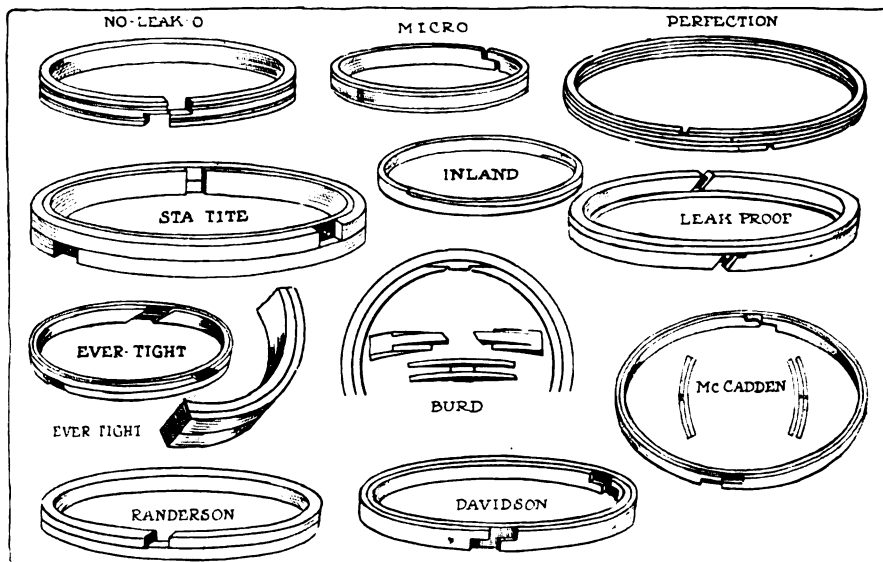
Houpert Machine Co., 351 West 52nd street, New York.—Rings are made from individual castings machined on the outside only and are not hammered. The scale is left on the inside to permit the ring to hold its tension. All sizes.

No-Leak-O—Automobile Accessories Co., 816 West North avenue, Baltimore.—A one-piece concentric ring, individually cast with a single step-lap joint. Oil-seal grooves are cut in the periphery. All working surfaces are polished, but the skin is left on the inside; peined rings furnished at extra cost. Sizes from 2½ x ¼ to 7¾ x ½; prices up to 3¾ x ¼, 50 cents each; to 3¾ x 5/16, 55 cents. To 4 x ¼, 60 cents; to 4½ x ¼, 65 cents; to 4¾ x ¼, 70 cents; to 4½ x ¼, 75 cents; to 4¾ x 3/16, 80 cents; to 5 x ¼, 85 cents; to 5½ x ¾, 90 cents. Dealers, one dozen lots, 25 per cent; lots of 100, 33⅓ per cent.

Perfection—Automobile Construction & Engineering Co., 3324 Ludlow street, Philadelphia.—A multiple ring made up of thin sections of steel; each section is 1/16 in. wide and enough are put into the groove to fill it, joints being equally spaced; up to 3¾-in. diameter, 12 cents per section; to 3¾-in., 15 cents; to 4¾-in., 25 cents; to 6-in., 25 cents. Sizes larger and smaller, special prices; over-size sections for rebored cylinders, 25 per cent extra.

Ever Tight—Ever Tight Piston Ring Co., 1424 Chestnut street, St. Louis.—A three-piece ring in which the wide inner ring is channeled and carries two outer rings each half the width of the groove; each outer ring is shouldered to fit the groove in the inner ring. Joints are diagonal and are held at equal distances by pins. Sizes from 2¾ x ¼ to 6 x ½, and prices from \$1.40 to \$2.40 each.

Inland — Inland Machine Works, Eighth and Mound streets, St. Louis, Mo.—A one-piece concentric cast-iron ring is cut with a long spiral cut extending for half the circumference, making a long overlapping joint which is kept tightly closed by the spring of the metal. All the working surfaces are ground.



Piston rings of eleven different kinds designed to increase the efficiency of cars of every type

Price, 2½- to 3¾-in., \$1 each; 4- to 4¾-in., \$1.20; 5- to 7½-in., \$1.50.

American—American Piston Ring Co., 595 South 11th street, Newark, N. J.—Two styles of concentric peined rings are made, one plain with lapped joint and the other double. In the double ring the outer member has lapped joint and the inner a diagonal cut. Both rings are the same width. Single, from 60 cents for 3-in. to \$2.10 for 8-in; duplex, \$1.25 to \$4.50.

Tight-Wad — J. Horat, La Fayette, Ind.—A three-piece ring for Fords, having two wide members and one which is thin and flat. The large wide ring fits over the smaller ones. The three joints are set equal distances apart. \$1.25 each, or \$5 per set of four. Dealers, 40 per cent.

Randerson Automatic—Du Bois Machine Shop, Inc., 118 Hudson avenue, Albany, N. Y.—A compound ring with the main ring of L-shaped cross section and the angle filled by a smaller ring. The main ring has a square joint and the small ring a lapped joint diametrically opposite, which is a change from the older model in which the joints were at quarters. Pins hold the relative spacing. The gas from above finds its way back of the ring and causes an outward pressure against the cylinder walls. List prices range from \$1.80 for 2¾-in. to \$2.30 for 6-in. Dealers, 15 and 20 per cent.

McCadden Leakless—McCadden Machine Works, St. Cloud, Minn.—Two eccentric rings with stepped joints are placed one within the other with joints opposite and held in their relative positions by a dowel pin. Rings are ground on the bearing surfaces and are peined.

In the motor car sizes the prices run from 80 cents for 2- to 3½-in. x 3/16 or ¼, to \$1.50 for 5- to 5½-in. x ¼, 5/16 or ¾. Dealers, 25 per cent.

One-in-One—One-in-One Piston Ring Co., 996 North Seventh street, Philadelphia.—A concentric two-part ring, the main ring with a channel in its outer circumference to receive the second ring. The joints are cut at 45 deg. in opposite directions, so that if the cuts work around together leakage will be minimized. Material is soft gray iron, ground but not polished; up to (not including) 6 x ½-in., \$1.50 each.

B-W—Ballman-Whitten Mfg. Co., 5407 Easton avenue, St. Louis.—A two-piece eccentric ring in which the joints are at opposite points so that the thick section of one ring is over the thin section of the other; joints are in thin sections. Rings are machined all over but are not ground; 70 cents each for all sizes from 2½ to 4½ in., inclusive. Ford size, 50 cents; dealers, 30 per cent.

Sta-Tite—Piston Ring Co., Muskegon, Mich.—A three-piece ring having an inner member the full width of the groove and two outer members each half the width of the groove. Joints are all square cut and equally spaced, spacing maintained by pins at joints. Stock sizes range from 2½ x 3/16 to 5 x ¾. Prices up to 4 x ¾, \$1 each. Larger sizes \$1.25 each. Dealers, 25 per cent; jobbers, 50 per cent. Ordinary snap rings are made in all sizes and widths, come either concentric or eccentric, and all rings are made from individual castings.

K-P—Keys Piston Ring Co., Inc., 3047 Olive street, St. Louis.—A three-piece cast-iron ring, having a wide inner member and two outer members of half the width. Inner ring has two ridges fitting

into grooves in the outer ring. Rings are ground on the working surfaces and each ring is pinned. Joints are equally spaced. There is also a groove-and-tongue lock between the two outer rings. Sizes from $2\frac{1}{2} \times 3/16$ to $5\frac{1}{8} \times \frac{1}{2}$ and prices from \$1.25 to \$2.25 each. Dealers, 40 per cent.

S. Whyte Merritt Co., 311 West 59th street, New York.—Individual castings are used and no tool work is done on these one-piece, eccentric rings; all finishing is by grinding. The skin is left

on the inside surface to give spring. Both diagonal and lap joints are made. Price, 50 cents each; garagemen and repairmen, 30 cents.

Bridgeport—Bridgeport Piston Ring Co., Bridgeport, Conn.—Eccentric rings with diagonal joints, made from individual castings, are machined all over, ground on all the bearing surfaces and heat treated to eliminate distortion. Prices run from 32 cents for rings from $2\frac{1}{2}$ to $3\frac{7}{16}$ diameter, $3/16$ to $\frac{1}{4}$ width, to 56 cents for $5\frac{1}{8}$ to $6 \times \frac{1}{4}$ to $\frac{3}{8}$.

screw type and five of the ratchet. Types and prices are:

Model and Type	Capacity, tons	Rise, inches	Price
Eureka Babe, screw...	1	9 to 15	\$1.90
Eureka Jr., screw...	1.9	10 to 17	1
Eureka, screw...	2½	8 to 13	1.25
Eureka, screw...	2½	10 to 17	1.25
Eureka, screw...	2½	12 to 21	1.50
Eureka No. 4, screw...	5	13 to 20	4.50
Eureka No. 5, screw...	8	13 to 20	5
No. 3, ratchet...	2	10 to 17	1.20
Atlas, ratchet...	2½	10½ to 18	1.90
Atlas, ratchet...	2½	12 to 22	2.15
No. 7, ratchet...	2	8 to 17	1.75
Atlas, double lift...	2½	6½ to 18	2.50

Buckeye—Buckeye Jack Mfg. Co., Alliance, O.—More than a dozen different models are manufactured, all, with one exception, being of the ratchet-and-pawl type; the exception is a heavy screw self-lubricating jack, having an oil chamber in the closed base into which the screw dips and an oil reservoir in the cap. No. 0, passenger car jack, is typical of the line; it is double acting with a foot for low lifts; capacity $1\frac{1}{2}$ tons; \$5. Some of the other jacks are:

Model	Height, inches	Lift, inches	Capacity	Price
00	10	6	1,800 lbs.	\$2
000	11½	6	1 ton	3
01	8½	5	1 ton	4.50
03	10	6	1 ton	3.50
04	10½	6½	1 ton	4.50
05	12	6	1 ton	5
06	11½	7½	1 ton	5.50
07	9	5	1,000 lbs.	1.50
08	10	6	1 ton	3.50
09	11½	7½	1 ton	4
010	11½	6½	1 ton	4.50

Jiffy—The Jiffy Jack Co., Cleveland.—Ten types are made, No. 350, known as the Indestructo, being the leader. It is for loads up to 4,000 lbs. and as soon as the load is removed the lifting plunger drops. It is a ratchet type with a short stroke, thus permitting the use of a long handle under cars with a large overhang. It will lift to a maximum of 18 in. and has an auxiliary step for low objects; \$2.50. No. 300 is the same as No. 350 except that it has no step; \$2. The various sizes and prices are:

Model	Capacity, lbs.	Height raised	Price
10	1,000	15	\$1.75
15	1,500	15	1
200	2,000	15½	1.25
250	2,000	15½	1.75
300	4,000	11½	2
350	4,000	11½	2.50
400	5,000	19½	3.50
450	5,000	19½	4
No. 1 Jiffy Jax Tire Savers*	2,000	18½	5
No. 3 Junior Jiffy Jax Tire Savers*	1,500	18½	4
Ford Tire Saver*			4

*Price is for set of four.

Wm. E. Pratt Mfg. Co., 35 West Lake street, Chicago.—Little Giant screw jacks, geared screw with reversible ratchet on handle, malleable body and steel screw, capacity 4,000 lbs., height 8-13 in., \$2; dealers, 50 cents; 10,000 lbs., 13-18½ in., \$3.50; dealers, \$1. Double acting trip jack, lever and ratchet type, for cars up to 10 tons, \$7; dealers, 50 and 10. Pup jack, ratchet and lever, adjustable sliding head, for light cars, \$1; dealers, 40 cents. Standard malleable iron jacks, same construction as pup, for 1-ton cars, \$1.25; dealers, 60 per cent; 2-ton cars, \$2;

To Raise the Car's Weight

Lifting Jacks

Standard — National-Standard Co., Niles, Mich.—Ratchet, screw and gear jacks, and tire savers are included in the line of 12 models. The geared jack employs a ratchet to drive the pinion gear but the leverage is supplied by the meshing of this gear with a larger. It has a lift of $6\frac{3}{4}$ in. and costs \$6. The ratchet models are strongly made, having steel rack bars, and the jack frame is malleable iron.

Model and type	Rise, inches	Capacity, tons	Price \$6
National, gear...	6½	1	3
No. 1 Standard, ratchet	6	1	3
Baby Standard No. 6, ratchet	5½	¾	1.50
Leader No. 20, ratchet	7	1	1.50
Leader No. 14, screw	6	¾	1.00
Standard Tire Saver, per set of four			5.50

Emco—Eberhard Mfg. Co., Cleveland.—Two screw-type models have reversible pawl and gear movement. Both are 10 in. high when closed and lift 6 in., but one has a $\frac{5}{8}$ -in. screw and the other $\frac{3}{4}$ -in. Prices, 84 cents and \$1.

Badger and Walker—Walker Mfg. Co., Racine, Wis.—Badger jacks, rack and lever type:

Model	Height, in.	Lift, in.	Capacity, lbs.	Price
No. 1	11	6	1,500	\$1.75
No. 2	12	7	1,500	2.00
No. 3	11	6	2,000	2.50
No. 4 (taxi)	8½	4½	2,000	2.50
No. 5 (truck)	11½	5½	6,000	6.00
No. 7 (foot lift)	11	6	2,000	3.00
No. 8 (foot lift)	11	6	1,500	2.25
No. 6 (adjustable foot lift)	11	6	2,000	3.50

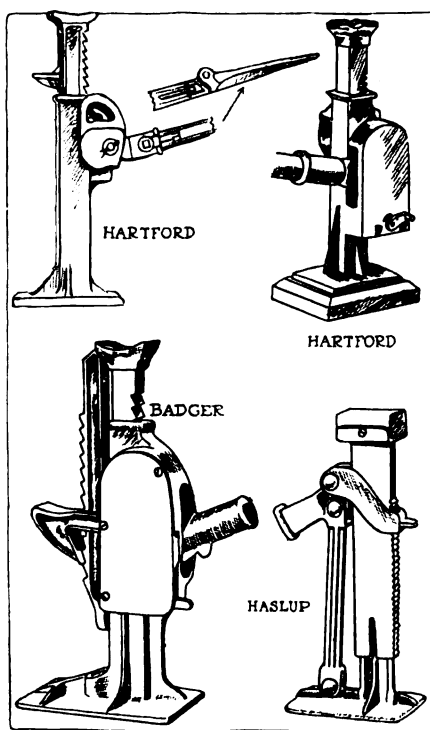
The foot lift adjustment is on a separate rack; the capacity of the foot lift is about 1,400 lbs. All Steel jack, all parts of cold rolled steel riveted together, casehardened pawls, lever and ratchet type, height 10 in., lift 5 in., capacity 1,000 lbs., \$1.25. Triumph, malleable iron, single acting:

Model	Height, in.	Lift, in.	Capacity, lbs.	Price
No. 1	10	6	2,000	\$1.50
No. 2	12	8	2,000	1.75
Foot lift	12	8	2,000	2.00
Perfect, truck	15	11	10,000	*5.00
No. 0	8	5	2,000	*2.00
No. 1	10	7½	2,000	*2.00

*Geared screw.

Buckeye—Central Brass & Fixture Co., Springfield, O.—Lifting jacks are made in four models, one rack and lever and the others geared screw. The rack jack is for cars weighing up to 5,000 lbs., is 12 in. high lowered, has 7-in. rise and may be operated by hand or foot. When not in use the lever is clipped in the stand and locks all parts together. Weight, 8 lbs.; \$2.70. The largest geared screw jack, for 5,000-lb. cars, is 12½ in. high, lowered, rises 6 in., has $\frac{3}{4}$ -in. square thread screw and swivel cap. Weight, 6 lbs.; \$1.45. The two smaller geared screw models are for 3,000- and 1,800-lb. cars, respectively, and the prices are \$1.05 and 85 cents. Dealers, 50 per cent.

Eureka—The Ashland Mfg. Co., Ashland, O.—Ten models include five of the



Four of the newer jacks with which energy is conserved

dealers, 60 per cent; 3-ton cars, \$3; dealers, 60 per cent. Pratt car jacks, ratchet and lever of malleable iron with tire tool handles:

Capacity, lbs.	Height, in.	Price	Dealers
1,500	10½-15½	\$1.25	\$0.45
2,000	9-12½	2.25	.65
2,000	10½-15	2.25	.70
3,000	12-17½	2.75	.75

Barth—Barth Mfg. Co., Milwaukee.—

All are of the ratchet type with a button at one side to control the up or down movement. There are 17 different styles, ranging from 1 ton to 10 ton capacity. The more popular models are:

Model	Capacity, tons	Rise, inches	Price
No. 1	1	7	\$2.25
No. 3	1	7	2
No. 2 (step)	1	11	2.75
No. 4 (step)	3	8	6

Peerless—Oliver Mfg. Co., Chicago—

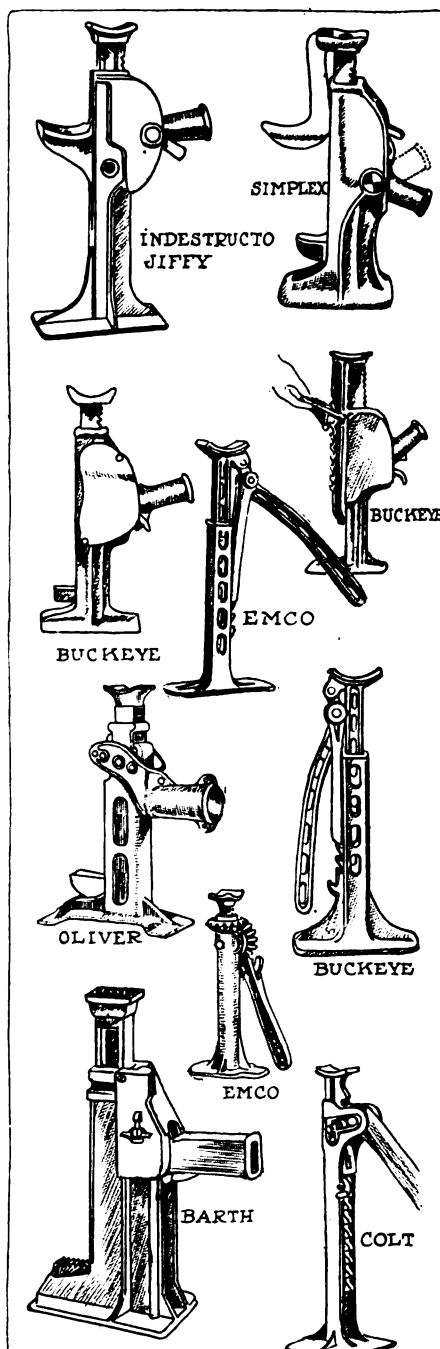
Two ratchet type models of lifting jacks are manufactured and one tire saving jack. Sizes and prices are:

Model	Height	Rise	Price
1-ton	8½	5	\$2.50
1-ton	10	7	2.50
1-ton	12	8½	2.50
2-tons	9½	6½	3
2-tons	11½	8	3
2-tons (low bracket)	11	6	3
5-tons (low bracket)	11	4	6
5-tons (low bracket)	14	7	7
3-tons	11½	7	3
3-tons*	15	7½	5
6-tons*	17½	7½	8

*For garage use. Two brackets, attached iron handles and wood base.

Simplex—Templeton, Kenly & Co., Chicago.—The four ratchet-operated sizes include a single-acting type and double acting. The smallest has a capacity of 1,500 lbs. and a lift of 6½ in. There is a middle shoe or bracket for getting under low axles. Price, \$1. The larger are provided with three shoes, one of which is detachable. The capacities of these three are 1, 2 and 3 tons and the list 10 in., \$3.50; 11½ in., \$4.25, and 13 in., \$5. Each jack is packed in a neat box to aid the dealer in keeping in a neat, clean stock.

Booth—L. P. Halladay Co., Streator, Ill.—Malleable iron is used throughout the construction of this jack, which is continued for 1916 unchanged. It is of the rack-and-pawl type, locking, and can



Here are jacks of nearly every type on the market, and for every purpose

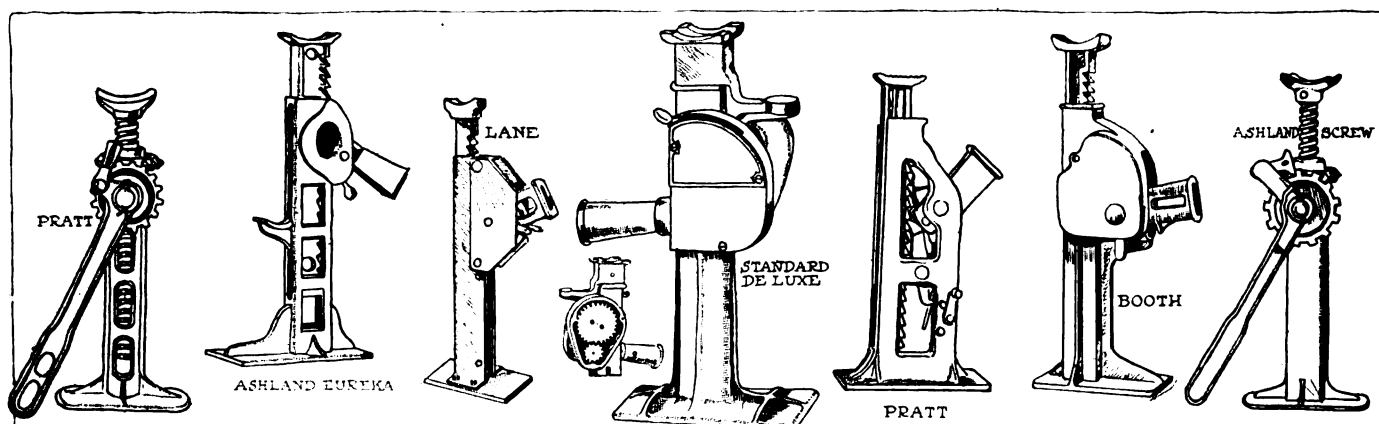
be pulled out to the desired height without working the handle and returned in the same way. Two sizes are made, 1-ton, 9½ in. closed and 14 in. open, \$2.50; 1½-ton, 11 in. closed and 17 in. open, \$2.75.

Lane—Lane Bros. Co., Poughkeepsie, N. Y.—Rack-and-pawl mechanism is employed, racks being cut from solid steel; dogs are short and stubby and placed to give direct upward lift. Framing is of steel plate and handle of bar steel, curved to permit change of position by turning it over. The reversing key is on the operating lever and the trip on the jack proper. Prices, No. 4, 1,800 lbs., height lowered, 10 in., \$1.50; No. 5, 1,800 lbs., height lowered, 11½ in., \$1.65; No. 6, 3,000 lbs., height lowered, 10¼ in., \$2.50; No. 7, height lowered, 11¾ in., \$2.75. Dealers, 40 per cent.

Colt—Batavia Clamp Co., Batavia, N. Y.—Two models are made. A-1 is a double-acting jack, both upward and downward movements of the handle raising the load, acting through a rack-and-dog mechanism. A shifter at the side permits the lowering of the load in the same way. B-1 is a light, open jack with the handle mounted on a movable fulcrum so that it can be shifted according to the weight of the lift. List price, A-1, 1-ton, \$42 per doz.; dealers, 55 per cent. B-1, ¾-ton, \$24 per dozen; same dealer's discount.

Hoco—Hoeft & Co., Ashland avenue and Kinzie street, Chicago.—This jack consists of a four-legged standard from the top of which rises a column carrying the axle crotch. Adjustment for height is made by means of holes in the column through which the supporting bolt passes. Made of cast iron, aluminum finish, adjustable from 12 to 20 in., weight per set, 24 lbs.; set of four, \$3.50.

Haslup—Haslup Motor Jack Co., Sidney, O.—Rack-and-lever type with sliding head adjustable to any car; malleable iron with hard wood head block. One movement of lever raises car and locks



And here are more that have been designed to elevate a car quickly without giving the owner a backache and to give the dealer a profit

jack. Set of four jacks weighs 35 lbs.; \$6.

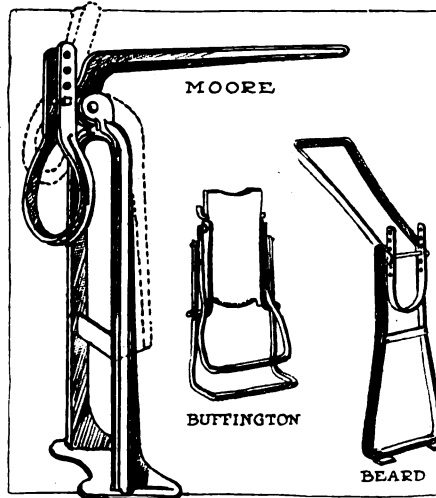
Gemco Easy Lifter—Gemco Mfg. Co., Milwaukee, Wis.—A ratchet type lifting jack in two sizes, one for cars weighing less than 2,000 and another for cars up to 3,500 lbs. When lowering the car it is not necessary to continue the strokes of the handle after the wheel is resting in the ground, as the ratchet is automatically released at this point. By reversing the handle the same feature enables the head of the jack to be brought up beneath the axle immediately. \$1.55 and \$1.90 for smaller and larger size. Tire saving jacks are made in three sizes, toggle operated and adjustable. Regular size, per set of four, \$5.30; extra heavy, \$6.90; for light cars, \$4.50.

Moore Tire-saving Jacks—Walker-Moore Mfg. Co., Racine, Wis.—Two types of toggle-operated jacks include a tire-saving jack and an ordinary garage jack; for 32-in. tires, \$5 for four; 32- to 36-in. tires, \$6.50 for four; 37- to 42-in. tires, \$7.50 for four. The Racine Tire Saver and garage jack is made in only one size but is adjustable. Price, \$6.

Wm. E. Pratt Mfg. Co., 35 West Lake street, Chicago.—Perfect tire supports are malleable iron props for placing under axles; set of four, black enamel finish, \$3; dealers, \$1.25; made in three sizes; for axles under 14 in., under 16½ in., and under 18 in. Storage jacks, lever and cog type with automatic locking handle for light cars set of four, \$4.50; dealers, \$2. No. 22 storage jack, ratchet and lever, automatic lock, for heavy cars, set of four, \$5.50; dealers, \$2.50. No. 24, with adjustable leather loop, for light cars, set of four, \$5; dealers, \$3. No. 25, same construction for heavy cars, \$6; dealers, \$3.50.

Emco—Eberhard Mfg. Co., Cleveland.—This tire saving jack has a hollow base or column with a riser carrying the leather-lined jaw in which the hub or axle rests. The lever is pivoted to the riser and a long pawl, reaching down to a rack on the outside of the column, is pivoted to the lever close to the riser. The pawl is placed by hand in the notch which gives the proper height with the handle elevated; the depressing of the handle raises the car and locks the jack by bringing the pivot beyond the line of pressure. For 28- to 36-in. wheels, \$1.50 each. With swivel top and offset spur, \$1.75 each. Aluminum finish.

Buckeye—Central Brass & Fixture Co., Springfield, O.—A single model tire saving jack has a sliding head with a long pawl on the outside reaching down to a rack on the side of the standard. The connection between the pawl and the head is a pivot in the operating handle, the whole forming a toggle joint. The head of the jack is placed under the



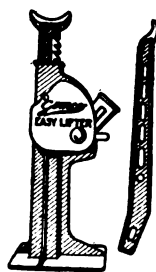
Jacks that elevate the laid-up car and save the tires

hub-cap and the pawl placed in the proper notch, with the handle elevated. Depressing the handle raises the car and at the same time locks the jack. Made of malleable iron, aluminum finish, with leather-faced saddle; price per set of four, \$6.25. Dealers, 50 per cent.

Beard—Beard Auto Lift Co., Pleasant Lake, Ind.—Steel is used in all parts of this tire saving jack; there are no castings. The lower part is of channel section and the handle, pivoted to it, is of flat steel and carries a drop loop which goes under the hub. As the loop is on the short end of the lever, the weight of the car is easily raised by a single downward pressure. Holes in the loop are provided for adjustment for height. Weight per set of four, 25 lbs; price per set, \$5. Dealers, \$2 to \$3 per set, according to quantity. Ford size, dealers, \$1.85 to \$2.25 per set.

Buffington—C. A. Buffington & Co., Berkshire, N. Y.—This car supporting jack has a frame of ½-in. round polished steel and carries a lifting head of the same stock provided with a wood saddle in which the hub rests. The head is provided with an adjustment so that it can be set for wheels of any height. The set of four weighs 24 lbs; finish, black enamel. Price, \$5 per set; jobbers, 12-set lots, \$2.70.

National—National Jack & Mfg. Co., 130 S. Clinton street, Chicago.—Steel bar rack jack, malleable iron body, adjustable by lifting rack to position, malleable iron handle serves as hammer and tire



Gemco "Easy Lifter"

tool, capacity 2,000 lbs., adjustment 7¼ to 16½ in., \$3.25. No. 1, geared screw jack, reverse dog control by side movement of handle; ¾-in. steel screw, capacity 2,000 lbs., adjustment 10 to 17½ in., weight 5 lbs., \$1. Alrite screw jack, reversible ratchet and gear movement, malleable iron body, steel screw, four models, 1,500 lb. type, adjustment 8 to 13 in., \$1.20; 10 to 17½ in., \$1.30; weight 4 and 5 lbs. 3,000 lb. type, adjustment 12 to 22 in. and 15 to 26 in., \$4.45 and \$4.75; weight 12 and 14 lbs. Starite, ratchet and lever jack, short fulcrum for heavy lifting, spur for low lift, malleable iron construction, adjustment 8½ to 18½ in., capacity 2,000 lbs., \$3.70. Baby Starite, same construction but smaller, capacity 1,500 lbs., adjustment 7 to 15 in., \$1.50. National 24, ratchet type, short stroke, capacity 2,000 lbs., adjustment 12 to 18 in., \$3.70. Baby National, same construction, 10 to 15½ in. adjustment, capacity 1,500 lbs., \$1.90. Little Giant, screw and nut type, 6 positions for lever, socket and set screw in base for lever when not in use, quick adjustment on screw, 1,500 lbs., 9½ to 15 in. adjustment, \$1.15; 11 to 18 in. adjustment, \$1.25.

Pliers

Dreadnaught and Victor—Kraeuter & Co., Inc., 571 Eighteenth avenue, Newark, N. J.—This line of pliers is extensive; among those adapted to motor car work is the Dreadnaught of the flat nose type, of chrome nickel steel, side cutting, box joint, hand fitted; cutters will cut tempered steel wire; rivets electrically riveted and hardened, handles are corrugated in an ornamental pattern. The Victor Universal has one jaw curved and the other straight, hardened gripping teeth, wire cutter on handle side of joint. Dealers, \$4.80 per dozen. Slip joint side cutting, nickel plated, two wire cutters which will cut 8-penny box nails, 7-in., \$5.50 per dozen; 6-in. combination pliers, slip joints, wire cutter in throat, nickel, \$3.75 per dozen; black, \$4.30 per dozen.

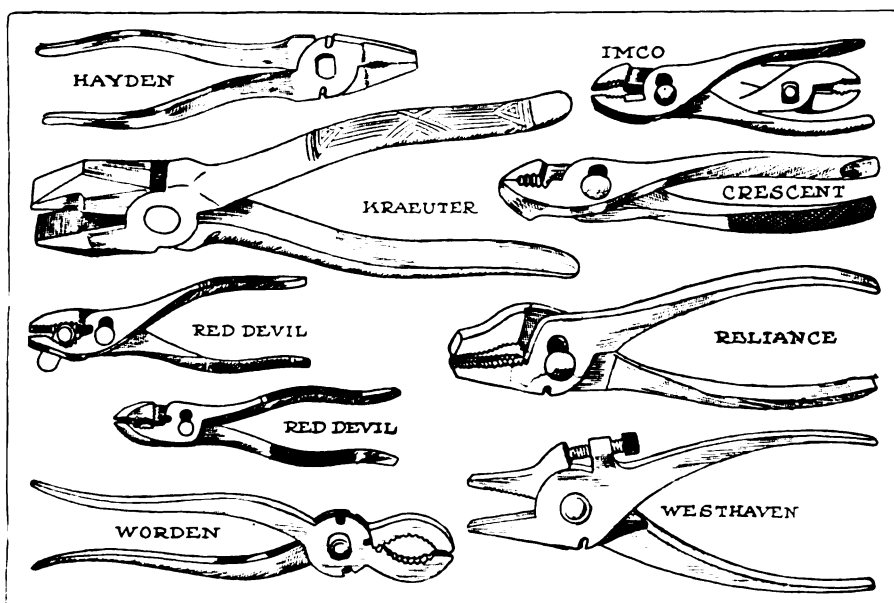
Red Devil and Imco—Smith & Hemenway Co., Inc., 150 Chambers street, New York.—Red Devil combination slip joint pliers for holding pipes, nuts and irregular shapes, nickel plated, checkered handles, 6½-in., 80 cents, dealers, \$7.80 per dozen; 8-in., 95 cents, dealers, \$9.50 per dozen; 10-in., \$1.15, dealers, \$11.50 per dozen. Same model, made of standard steel, prices, 55, 70 and 85 cents each; dealers, \$5.50, \$7 and \$8.50 per dozen. Red Devil Bent Nose combination plier with wire cutter, 8- and 10-in., 95 cents and \$1.15 each, dealers, \$9.40 and \$11.50 per dozen. Imco combination adjustable side cutting, burner grip, pipe grip

and flat nose, 6½-in., 80 cents each, dealers, \$8 per dozen. Imco thin jaw combination plier, bent nose, screwdriver on end of handle, 6½-in., 70 cents, dealers, \$7 per dozen. Imco vest pocket, combination plier with wire cutter and slip handle, 5½-in., 55 cents, dealers, \$5.50 per dozen. Imco combination slip joint plier, knurled handle, straight jaws, 6½-in., 35 cents, dealers, \$3.25 per dozen. Combination cutting plier and nut wrench, heavy construction with heavy wire cutters, 5½-in., 60 cents; 6½-in., 70 cents; 8½-in., 75 cents; dealers, \$6, \$6.80 and \$7.50 per dozen. Combination plier with one curved jaw to hold irregular shapes, checkered handles, 7-in., \$1 each; dealers, \$10 per dozen. Extra heavy combination pliers, checkered handles, slip joints, \$1; dealers, \$10 per dozen. Several other types are made.

Reliance and Combination—The Kilborn & Bishop Co., Lloyd and River streets, New Haven, Conn.—Reliance pliers with slip joint, two wire cutters, milled jaws, 7-in., black finish, \$13.50 per dozen; nickel plated, \$15 per dozen. Combination pliers, 6-in., slip joint, black, \$13.50 per dozen; nickel plated, \$15 per dozen; 8-in., \$16 and \$18 per dozen; ebonized steel finish combination pliers, 6-in., \$13.50 per dozen; 8-in., \$16.60.

Crescent—Crescent Tool Co., Jamestown, N. Y.—Crescent universals have curved jaw and straight upper jaw; lower jaw forces object being held to a firm bearing on straight upper jaw. Straight jaw has wire groove running lengthwise, wire cutter in throat and slip joint; 7-in., \$6 per dozen nickel plated and \$5.40 per dozen black. Dealers, \$3.24 and \$2.92 per dozen. Combination pliers, conventional type, slip joints, 6-in., black, \$6.60 per dozen; nickel, \$7.80 per dozen; 8-in., \$7.80 and \$9 per dozen; 10-in., \$9 and \$10.80. Motor kit combination pliers, slip joint, knurled handles, nickel plated, 5- and 6-in., \$4.20 per dozen; dealers, \$2.52 per dozen. Simplex combination slip joints, 5- and 6-in., \$13.50 and \$15 per dozen; 8-in., \$16 and \$18 per dozen; 10-in., \$18 and \$21. Slip joint, checkered handles, 5- and 6-in., \$2.40 per dozen; dealers, \$1.60 per dozen. Thin bent nose pliers, 6-in., black, \$5.40; nickel, \$6; dealers, \$3.60 and \$4 per dozen.

Hjorth—Wm. Hjorth & Co., Jamestown, N. Y.—Pliers are in five models. Bent nose pliers, 6-in., can be used close to a flat surface, nickel, \$10.50 per dozen; black, \$9.25 per dozen; 8 and 10 in. to order; knurled handle combination pliers, slip joint, screwdriver on handle end, 6-in., plated and polished, \$3.75 per dozen; rough plated, \$2.50; black finish, \$2.40; bevel jaw, thin nose, auto type for use in close places, knurled handle, screwdriver in end, slip joint, nickel plated, \$15 per dozen; blue, \$13.50 per dozen. Plain combination with wire cut-



Some types of pliers that will sell readily

ter, nickel plated, 5-in. and 6-in., \$15; 8-in., \$18; 10-in., \$21 per dozen; black, 5- and 6-in., \$13.50; 8-in., \$16, and 10-in., \$18 per dozen; 6-in., black finish with polished nose, \$2.40 per dozen. Little Gem, 4-in., nickel plated, combination, \$3 per dozen.

Shark—Wakefield Mfg. Co., Wakefield, Neb.—One model is made with sharp teeth, those in the upper jaw pointing in the opposite direction to those in the lower, so that when gripping a rod or pipe the teeth of both jaws will bite. The joint is adjustable, the opening is extremely wide and a wire cutter is provided. Price, 6-in., 50 cents; dealers, \$3.50 per dozen; 10-in., \$1.25.

Hargrave—Cincinnati Tool Co., Norwood, Cincinnati—Pliers are in two styles, combination, flat jaws with notch for rode, wire cutter and screwdriver and reamer in end of handle; 7-in., black, \$14 per dozen; polished, \$16; insulated handles, \$16 and \$18 per dozen. Lineman plier, 8-in., black, \$16 per dozen; polished, \$18 per dozen; with insulated handles, \$18 and \$20 per dozen.

Worden—E. M. Worden, Ladysmith, Wis.—Combined pliers and cotter pin pullers with thin-ended handles which can be used for spreading cotter pins, wire cutters and belt punch. The jaws are arched and will take pipe of considerable size. Price, \$1.

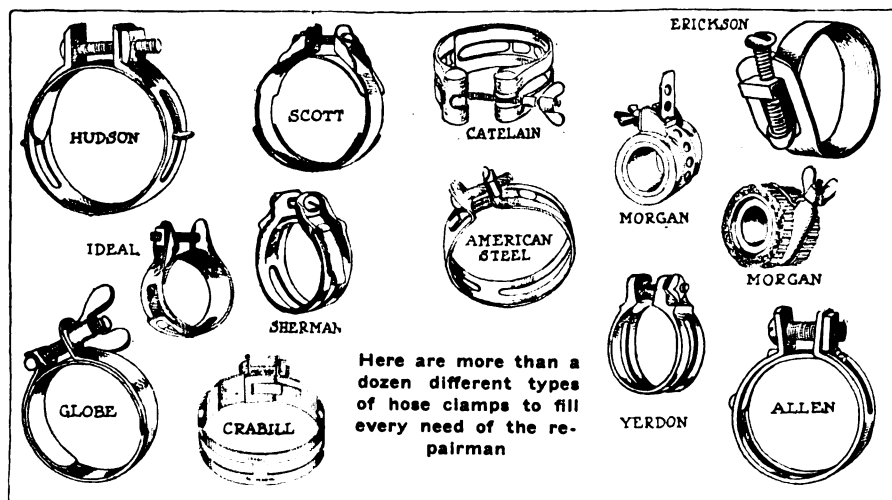
B. & S. and Hayden—Billings & Spencer Co., Hartford, Conn.—Combination pliers have slip joints and are in three types, Nos. 0, 1 and 2 having short curved handles, No. 3, longer handles, and No. 4 the longest. No. 0, 5-in., nickel, \$10 per dozen. No. 1, 6-in., black, \$13.50; nickel, \$15. No. 2, 8-in., black, \$16; nickel, \$18. No. 3, 10-in., black, \$18; nickel, \$21. No. 4, 14-in., black, \$24;

nickel, \$30. Slip box joint pliers with wire cutters, 6-in., \$15 per dozen. Hayden wire cutters and gas pliers combined, interchangeable tool steel cutters, 6-in., \$12 per dozen; 8-in., \$15; 10-in., \$20.

Bergman—Bergman Tool Mfg. Co., 1573 Niagara street, Buffalo, N. Y.—Side cutting combination plier, 60 carbon tool steel, cutters in throat, both jaws corrugated, nickel plate on copper, knurled handles, \$4 per dozen; blue, \$3.75. Shear cut combination, wire cutter with wire holding notch, slip joint, nickel plated, \$3 per dozen; blue, \$2.75. Buffalo combination, plain pliers, slip joint, made in 5- and 6-in., nickel, \$2; blue, \$1.75.

Multiple-Head Kit — Currier-Koeth Mfg. Co., Coudersport, Pa.—In this plier the handles and jaws are separate; a number of types of jaws are supplied so that one plier answers several purposes. Heads are of the following types: pincer, for pulling and light wire cutting; leather punch with removable cutting tubes, 3/32, 1/8 and 5/32 in., metal punch, alligator wrench head, nipper head for cutting, snip head for cutting sheet metal, pruning shear, staple puller, Weed chain plier and combination plier. Complete set in slide cover box, \$3.50; in fiber compartment chest or canvas roll, \$3.75. Dealers, 33⅓ per cent.

Buffum—Buffum Tool Co., Louisiana, Mo.—Combination slip joint pliers, forged steel, pipe and flat jaws, wire cutter in throat, in black and nickel, 5 in., 35 and 50 cents; 6 in., 50 and 75 cents; 8 in., 75 cents and \$1; 10 in., \$1 and \$1.25. Thin nose combination slip joint, 6 in., black, 50 cents; nickel, 75 cents. Button pattern wire cutting pliers with cutter stop, milled jaws, 4½ in., 60 cents; 6 in., 70 cents; 8 in., 80 cents; 10 in., \$1. Lineman's pliers, side cutting, 4, 5, 6, 7 and 8 in., 75 cents, \$1, \$1.25, \$1.50 and \$1.75.



Hose Clamps

American—American Stamping Co., Battle Creek, Mich.—This clamp is stamped from a single piece of galvanized steel and the tongue which bridges the gap under the lug-and-bolt fastening slides in a groove to prevent cutting the hose. Made in special motor car sizes, including Ford.

Morgan Mfg. Co., Newport, R. I.—Four types are made. Type 7 is a wire band with the ends running into a metal lug which has a brass thumb nut for tightening. Prices from 8 to 16 cents, according to size. Also made with extra long wire bands for securing covers on universal joints and the like. Prices, 16 to 32 cents each. Dealers, 60 per cent. Type 10 has a flat brass band with the ends terminating in a brass fitting with a thumbscrew; the band has a number of holes for adjustment. Price, 10 to 24 cents; dealers, 60 per cent. A flat steel clamp with upturned ends for taking a bolt and a tongue spanning the gap is sold in all sizes for \$5 per 100; dealers, 40 per cent. A pump hose clamp, which is a plain heavy brass band with upturned ends and a brass screw; prices, \$8 to \$8.90 per 100; dealer's discount, 70 per cent.

Scott—The H. F. Schvier Mfg. Co., Detroit.—The latest product is a one-piece hose clamp in which a band of brass or galvanized steel is carried twice around the hose, one end being passed through a slit cut in a wider part of the band; the ends with the lugs for the single screw come outside so that they cannot pinch or wrinkle the hose and the gripping surface extends for the whole circle. The makers state that it makes a gas-tight joint. Nickel, japan, enameled or plain finishes can be supplied. Prices range from \$15 to \$80 per

thousand. Two-part clamps also are made.

Globe—Globe Machine and Stamping Co., Cleveland.—In two pieces with a wing nut clamping the ends of the outer piece together; the inner member covers the gap in the outer one. \$1.50 to \$2 per doz., according to size, which runs from 1 in. to 4 in.

Yerdon—William Yerdon, Fort Plain, N. Y.—These cast brass hose clamps have a shoulder on each lug so that the clamp can be squeezed on the hose in a vise. The material is flexible enough to permit a considerable range of adjustment. All sizes up to 3-in. are made with a single bolt. The sizes for Fords are made on order—2½ and 3¾ in., \$3 and \$3.50 per dozen, respectively. Regular bands for hose from ½-in. to 2½-in. inside diameter range from \$1.50 to \$8.50 per dozen; dealer's discount, gross lots, 65 per cent; 1 to 3 gross, 65 and 5 per cent.

Hudson and Nofault—Hudson Hose Mender Co., Inc., Melrose, Mass.—The Hudson wire hose band is unchanged; a piece of wire with hooked ends is passed around the hose and the hooked ends engaged by a special plier and given a twist which forms a tight lock. A new type has been added, the Nofault, which is pressed from sheet steel and galvanized. It is in two pieces, one a plain band with bolt and two slots on opposite, and the other part a bridge which passes under the gap and has upturned lugs at the ends to engage the slots. The object is to prevent the buckling of the hose when the bolt is tightened. Prices of Hudson wire bands run from \$3 to \$7 per 100. The price of the Nofault

is \$5 per 100, with a 50 per cent discount to dealers.

Tape Grip—Herz & Co., 245 West 55th street, New York—Tape is wound around the hose with the aid of a metal ring which has a slot through which the tape is fed as the ring is turned. The diameter of the ring is slightly greater than that of the hose, and when the layers of tape fill the space the ring tightens upon them and compresses the joint. Raised knurled edges are provided. The joint can be disconnected by turning the ring in the reverse direction. Prices, ⅞-in., 20 cents; 4-in., 70 cents.

Erickson—P. E. Erickson & Son, Inc., Rye, N. Y.—These are one-piece constructions of galvanized Swedish iron. Fastening screws are long so that each clamp will take several diameters of hose. Sizes vary by quarter inches; 1-in., 60 cents per dozen; dealers, 40 cents; 1¼-in., 65 and 40 cents; 1½-in., 70 and 40 cents; 1¾-in., 75 and 45 cents; 2-in., 80 and 45 cents. Larger sizes are made up to 3 in.

Ideal—Ideal Clamp Mfg. Co., 202 Bradford street, Brooklyn, N. Y.—A two-piece clamp with a tongue extending across the gap and for a distance on both sides of it so that when the clamp is tightened there will be no pinching of the hose. \$4 to \$8 per doz., according to size, ¾ to 3¾ in.

Allen—W. D. Allen Mfg. Co., 133 West Lake street, Chicago.—These clamps are of heavy galvanized sheet steel with ends turned up, forming lugs for the fastening bolt; small lugs are formed near the bolt lugs to afford a hold for vise jaws when closing clamp on hose. A tongue spans the opening of the joint to prevent wrinkling. All sizes are made.

Thompson—Newark Stamping Co., Newark, O.—This clamp is made in two pieces, the larger being about three-quarters of the circumference and the smaller the remainder. The two parts are joined at one end by a hook and at the other by a bolt.

Catelain—Andre G. Catelain, Chicago.—This coupling is adjustable and is tightened by a wing nut. ¾ to 1½ in., 20 cents; 1¾ to 2½ in., 22 cents; 2¾ to 4 in., 25 cents. Dealers, per dozen, \$1.35, \$1.50, \$1.75, according to size.

Elk—Elk Mfg. Co., 1926 Broadway, N. Y.—This hose clamp is a ribbon of brass arranged for clamping tightly by a stud and nut. 8 to 32 cents each in 1 to 3 in. sizes.

Crabill—Crabill Hose Clamp Co., Battle Creek, Mich.—There are both single

and double tongue styles. The clamping is done through a bolt and nut. Sizes vary from $\frac{1}{2}$ to 3 in. and the prices per dozen range from 30 cents to \$1.80 in brass and 20 to 90 cents in steel.

Sherman—H. B. Sherman Mfg. Co., Battle Creek, Mich.—Brass hose clamps with band pliable enough to hug the hose and the ends stiff enough to carry the strain of screwing tight. Per dozen, \$2 to \$3, depending on size, which varies from $\frac{1}{2}$ to 3 in.

E. Edelmann & Co., Chicago—These clamps are made especially for Fords and are black iron or sheradized; $2\frac{1}{8}$ in. for inlet and $2\frac{3}{8}$ in. for outlet, 5 cents. Other sizes, $\frac{3}{8}$, $7/16$, $\frac{1}{2}$, $\frac{5}{8}$ in., \$5 per 100. These are all of sheet metal with a single clamping screw and a tongue across the gap.

Foot Pumps

Bridgeport — Bridgeport Brass Co., Bridgeport, Conn.—The Stapley is a compound pump with seamless brass barrel; air is taken in at the top and the valve closes without permitting loss of air. Hose connection is at the top together with the gauge. Packed 20 in a case; case, $32\frac{3}{4} \times 19\frac{1}{2} \times 22$ in. With gauge, \$6; without gauge, \$4. The Aeolus, also a compound, is somewhat less expensively built than the Stapley, selling for \$5 with gauge and \$3.50 without. The Windjammer, the third compound pump of the series, is so constructed that it can be taken apart by the removal of one nut. Furnished with gauge at \$6 and without gauge at \$4. The Crown single-action pump has a seamless brass tubing barrel, $1\frac{1}{4} \times 17\frac{1}{2}$ in., cast base and removable screw cap; \$1.50.

C. & S.—Codman & Shurtleff, 120 Boylston street, Boston.—No. 8, a stirrup-base, single-cylinder pump, $1\frac{1}{4}$ -in. bore, brass tubing barrel, double metal valves, double parachute leather packing, steel rod, stroke 16 in., \$4; with flat base, projecting on both sides, \$4.50. No. 7, same construction, $1\frac{5}{8}$ -in. bore, 16-in. stroke, flat base only, \$4.50. No. 9, $1\frac{3}{4}$ -in. bore, 16-in. stroke, steel-stirrup base, dust filter in air inlet, \$4.50; with $15/16$ -in. bore, \$4. No. 14, $1\frac{5}{32}$ -in. bore, 16-in. stroke, steel-stirrup, \$3.50. No. 15, $1\frac{5}{32}$ -in. bore, 16-in. stroke, small flat base, air filter in intake, \$4.

Gleason-Peters Air Pump Co., 255 Classon avenue, Brooklyn, N. Y.—The largest pump in this line is No. 62, compound, with vertical high- and low-pressure cylinders mounted on a cast base. The plungers are operated by a yoke

pivoted between the cylinders and oscillated by a long upright lever. The whole pump is on a substantial wood base, $2 \times 8 \times 30$ in.; cylinders 2 in. and $3\frac{1}{2}$ in. bore; maximum pressure, 150 lbs. With gauge, \$9; without gauge, \$8. No. 273, French style pump with a single cylinder with stirrups which fold against the barrel and a T-handle which unscrews for packing. Construction is unusually heavy. With gauge, \$3; without gauge, \$2. No. 266, of the same general type, but lighter, has a single folding stirrup. No. 4, Quick Service, has a single vertical cylinder, $3\frac{3}{4} \times 6\frac{1}{4}$ in., capacity, 36 cu. in. per stroke. Maximum pressure 135 lbs.; weight, 11 lbs.; extreme height, 23 in.; diameter of base, 6 in.

Kellogg—Kellogg Mfg. Co., Rocheser, N. Y.—Two- and three-cylinder compound and single-cylinder foot pumps are produced, one model of each. The cylinders in all are of heavy brass tubing. The single pump is for small cars and the price is \$1.50. The double-cylinder and the triple are for heavier work and higher pressures; they operate on the down stroke only, so that the weight of the operator helps to do the work. The price of the double is \$2.50. The triple pump costs \$4, or \$5.25 with gauge.

Anthony—The Anthony Co., 138 West avenue Long Island City, N. Y.—A single-cylinder, $1\frac{1}{2}$ in. diameter and 20 in. long, is made of heavy seamless steel tubing with a brass cap and a brass bottom piece which takes the thrust of the plunger, which does not hit the bottom of the barrel. The valve is metal; \$4; dealers, 50 per cent.

Jensen—W. H. Howell Co., Geneva, Ill.—A single-cylinder foot pump which may be operated at full speed without bending the back. The pump cylinder is pivoted on a foot rest and the pump handle extends far enough up so that the handle is within easy reach of a man standing erect. The pump is operated by an outward and downward movement, which is said to be much easier than the ordinary pump action. With pressure gauge, \$6.25.

Virtue—The Brown Co., Syracuse, N. Y.—A double-acting foot pump is made in one model. The two parts are so proportioned that both the up and down strokes are of practically even resistance. Leather washers are used for valves. \$3; dealers, 25 per cent.

Firestone Tire & Rubber Co., Akron, O.—Foot pumps are made in 2 models, a single-cylinder with a single foot piece which folds against the barrel and a clip at the top to hold the hose, \$2.25.

and the other a two-cylinder double-acting pump with double foot piece. Both have large, comfortable handle grips. \$2.50.

Juleco—Judd & Leland Mfg. Co., Clifton Springs, N. Y.—There are ten foot pumps, varying in size and price from \$1.25 to \$5. The Victor is a three-plunger model, 22 in. high. The cylinders have bores of $1\frac{3}{4}$, $1\frac{1}{4}$ and $\frac{3}{4}$ in. The Little Taylor is a two-cylinder pump with bores of $1\frac{3}{4}$ and $\frac{7}{8}$ in., \$2.

Coe-Stapely Mfg. Co., 30 Church street, New York.—All types of direct acting foot pumps are manufactured. The Baldwin is a compound-acting type with a cylinder $1\frac{5}{8} \times 12$ in., \$2. The Rex Special is a two-cylinder type with bores of $\frac{7}{8}$ and $1\frac{1}{2}$ in., \$2.25. Big Ben is a triple-action with cylinders of 17 in. stroke and bores of $\frac{7}{8}$, $1\frac{1}{4}$ and $1\frac{3}{4}$, \$5.

James—Generator Valve Co., Inc., 294 Taaffe Place, Brooklyn, N. Y.—A single model foot pump is made having a cylinder of heavy gauge brass tubing with cast brass caps and base; the top casting has a long collar for the plunger guide. Two malleable iron stirrups fold against the barrel. The pump is fitted with 3 ft. of hose and a slip-on connection for the tire valve. No. 1, without gauge, \$4.50; with gauge, \$5.50.

Imperial-Wixon—Imperial Brass Mfg. Co., Chicago.—The double-acting foot pump has a light up stroke and a heavy down stroke. \$5; \$8.50 with gauge. Triple compression pump, \$6.

Bell—The Bell Pump Co., Detroit.—One compound, a second single and the third a smaller single, make up the line. All are fitted with the Bell plunger, in which the cup leather is held between two steel washers and expanded by a beveled brass ring and a helical spring. Compound pump, \$3; single 24-in. cylinder, \$3.75; small single, \$2.50. Dealers, 30 per cent.

Yankee—Apex Electric Mfg. Co., Chicago.—The Yankee is a folding running board hand pump with a 7 to 1 leverage and a capacity of 36 cu. in. of free air per min. When in use the pump is attached to the running board and when not it is carried in the tool box. With 8 ft. of hose and running board clamp, \$4.50.

Carver—Osborne & Stephenson Mfg. Co., Plainville, Conn.—This pump is both double-acting and compound. It is of the conventional pattern. The pump is continued for 1916 without changes. Price, \$6; dealers, 25 per cent; jobbers, 40 per cent.

Brake Lining

Raybestos — Royal Equipment Co., Bridgeport, Conn.—This brake lining is made of 95 per cent asbestos yarn, interwoven with brass wire and impregnated with compounds to resist heat, wear, oil and water. Dealers, less than 25 ft., 50 per cent; 25 to 500 ft., 60 per cent; 500 or over (assorted sizes in one shipment), 65 per cent. Per foot:

Thickness, in.	1	2	3	4
1/4	\$0.32	\$0.52	\$0.74	\$0.92
5/32	.36	.64	.94	1.20
3/16	.42	.76	1.12	1.44
1/2	.56	1.00	1.46	1.88

Stability lining is a less expensive grade, made only in two thicknesses.

Thickness, in.	1	2	3	4
5/32	\$0.12	\$0.20	\$0.28	\$0.36
1/4	.18	.30	.42	.54

Motobestos—Asbestos & Rubber Wks. of America.—This brake lining is made of asbestos, solid woven. In the 1/4-in. thickness, for example, there are four plys woven together, and in the 1/2-in. there are six. By this process brake lining can be made varying from 1/16 x 1/2 in. to 3/4 x 18 in. Brass wire is woven through the asbestos. Per foot:

Thickness, in.	1	2	3	4
1/4	\$0.32	\$0.52	\$0.74	\$0.92
3/16	.42	.76	1.12	1.44
5/16	.75	1.28	1.86	2.36

Ajax is a folded and stitched hydraulic compressed friction facing. The material is the same as in the Multibestos. Per foot:

Thickness, in.	1	2	3	4
1/4	\$0.40	\$0.80	\$1.20	\$1.40
3/16	.50	.90	1.30	1.70
1/2	.70	1.20	1.70	2.20

Empire—Empire Tire & Rubber Co., Trenton, N. J.—This lining is made of asbestos interlaced with fine brass wire, after which it is vulcanized under hydraulic pressure. The prices of some of the sizes are:

EMBESTOS				
Widths, in.	1/4	Thickness—Inches	3/16	1/2
1	\$0.33	\$0.39	\$0.44	\$0.58
2	.54	.67	.79	1.05
3	.77	.97	1.17	1.53
4	.96	1.24	1.51	1.97

EMPIRE SOLID WOVEN				
1	\$0.40	\$0.45	\$0.50	\$0.70
2	.80	.85	.90	1.20
3	1.20	1.25	1.30	1.70
4	1.40	1.55	1.70	2.20

Dealers, 50 per cent, less 5 per cent for cash.

S. M. C.—Staybestos Mfg. Co., Germantown, Philadelphia.—This lining is made from long stranded Canadian asbestos fiber, spun about a two-ply brass or copper wire into a yarn and then woven into a solid fabric to the various widths and thicknesses. The distinctive feature is the compound with which the

fabric is treated. It is for the purpose of insuring uniform wearing qualities and to make the fabric impervious to oil, water, etc. The prices are:

Width, in.	1/4	Thickness—Inches	3/16	1/2
1	\$0.32	\$0.36	\$0.42	\$0.56
2	.52	.64	.76	1.00
3	.74	.94	1.12	1.46
4	.92	1.20	1.44	1.88

Multibestos—Standard Woven Fabric Co., Framingham, Mass.—This brake lining is a woven fabric made of 90 to 95 per cent asbestos yarn into which is woven brass wire. The fabric is spe-

cially treated to adapt it to motor car use. A new feature is the use of white transverse lines marking the lining off in feet to help the dealer in measuring it. It is made in thicknesses varying from 1/8 to 5/16 in. and in widths from 1 in. to 6 in. Some prices are:

Width, in.	1/4	Thickness—Inches	3/16	1/2
1	\$0.33	\$0.38	\$0.44	\$0.55
2	.54	.67	.79	1.05
3	.77	1.00	1.17	1.53
4	.96	1.20	1.44	1.82

Axwell—Axwell Equipment Co., Pittsburgh.—This lining is constructed of long fiber asbestos interwoven with brass wire. It is impregnated with a compound to give it gripping power and to make it impervious to water, oil, etc. The feature of this product is the vacuum method of curing which is for the purpose of preventing the lining from becoming hard or brittle. Discount, 40 per cent; 70 per cent on rolls of 100 ft. The prices on some of the sizes are:

Width, in.	1/4	Thickness—Inches	3/16	1/2
1	\$0.40	\$0.45	\$0.50	\$0.70
2	.80	.85	.90	1.20
3	1.20	1.25	1.30	1.80
4	1.60	1.70	1.75	2.30

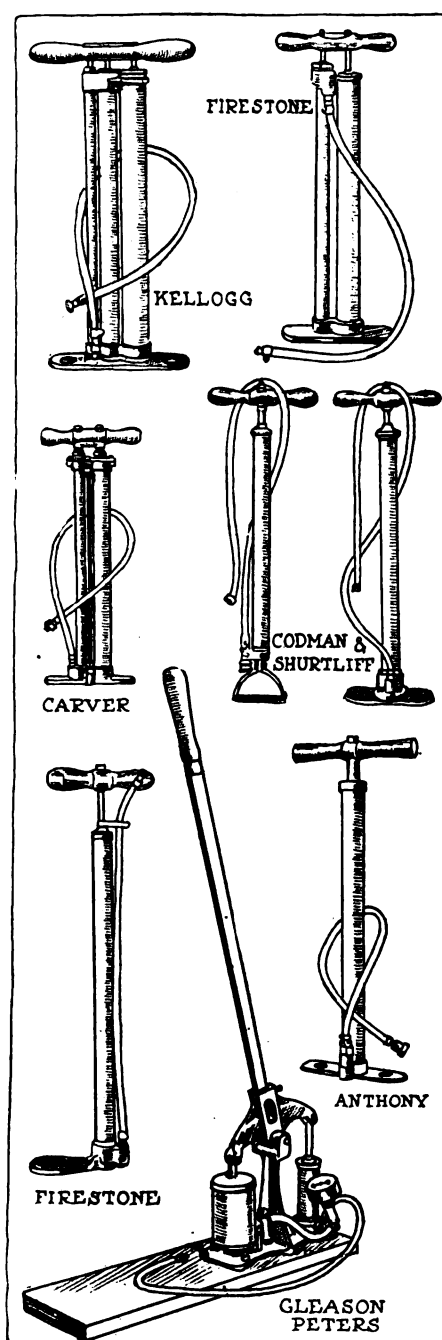
Thermoid — Thermoid Rubber Co., Trenton, N. J.—This brake lining is asbestos interwoven with brass wire, impregnated with a friction compound, and cured under 2,000 lbs. pressure for one hour at an intense heat. Prices of some representative sizes are per foot:

Widths, in.	1/4	Thickness—Inches	3/16	1/2
1	\$0.40	\$0.45	\$0.50	\$0.70
2	.80	.85	.90	1.20
3	1.20	1.25	1.30	1.70
4	1.40	1.55	1.70	2.20

Bestbestos — Federal Asbestos Co., Paterson, N. J.—The composition of this lining is long fiber asbestos yarn interwoven with 3-ply two-wire and impregnated with a special compound, making it proof against oil, dirt, gasoline, etc. It is dried and rolled under heavy pressure to give it an even thickness. The recommended sizes are as follows: 2 x 1/4, 2 1/2 x 3/16, 2 1/4 x 3/16, 1 x 1/8, 1 1/2 x 3/16, 1 1/2 x 1/4, 2 1/2 x 1/4, 3 x 3/16, 3 x 1/4, 4 x 1/4, 2 5/8 x 5/32 and 6 x 1/4. The price of the 2 1/2 x 1/4-in. size is \$1.88 per ft., less 25 per cent. Dealers, 60 to 85 per cent additional.

ON PAGE 83

On page 83 of this issue of Motor World is Instalment No. 5 of a series of articles on the Motor World Simplified System of Accounting. This series is explaining a system that can be handled by the garageman who has had on experience in accounting. If you have not followed this series begin now and then go back to the beginning and follow the course through. It not only describes the system but is a course in accounting. There is something in it for even the best accountants. Read the whole series.



Tire pumps in a variety of styles and at widely differing prices

Carbon Removers

Yost—Mitchell Mfg. Co., San Francisco.—This carbon remover is a chemical containing oxygen which acts on the carbon while the motor is running. It is made in the form of pellets and a number of these are put into each cylinder and then the motor is operated as usual. The heat of combustion is said to cause particles of the pellets to adhere to the carbon and at the same time oxygen gas is given off which aids in burning the carbon. From 24 to 48 hrs. are required before the job is completed. Usually four pellets per cylinder are enough for a large motor and two are sufficient for a Ford. \$1 per box of 48 pellets; dealers, 35 per cent.

Noncarbene — Noncarbene Co., 1765 Broadway, New York.—A special compound for removing carbon by mixing it with gasoline in the proportion of 1 pt. to 10 gal. Usually a 100-mile run will remove the carbon, it is said. Qt., 50 cents; gal., \$1.50; 5 gal., \$6.25; 10 gal., \$12; barrels, \$50; dealers, 12 gal., 30 per cent; 50 gal., 30 less 20 off; 100 gal., 30, 20 and 10 off.

Lightning—Grahamoline Products Co., Wilkes-Barre, Pa.—A liquid carbon remover which is applied when the engine is cold. The spark plugs are removed and about ¼ pt. is poured into each cylinder, making sure first that the valves are closed. Replace the spark plug and crank the motor a few times to thoroughly splash the liquid around; allow the motor to stand 10 min., throw the switch on and start the motor. \$1 per pt, \$2 per qt., \$3 per ½ gal.; dealers, 40 per cent.

Prest-O-Carbon Remover — Prest-O-Lite Co., Indianapolis.—A liquid remover which is placed in one cylinder at a time. The combustion chamber must be completely filled by the liquid and allowed to stand 1 hr. Then drain off the liquid and run the engine with throttle wide open with retarded spark until blue smoke ceases to come out of the exhaust. \$1 per qt.

Dumaco—J. E. Dulin Mfg. Co., Springfield, Mo.—A chemical compound which is allowed to stand a few minutes in each cylinder. One-half to 1 oz. is put in each cylinder, the motor is cranked a few times and allowed to stand 15 to 20 min., when it is started up and the combustion blows the carbon out through the exhaust.

Thomas—Thomas Carbon Remover Co., Providence, R. I.—This is a liquid which is introduced into the cylinders

while the motor is hot. It is said to dissolve the gummed oil holding the carbon so that the latter is blown out of the exhaust as soon as the motor is started. About 1 oz. is required per every 4 h. p. per cylinder. Quart can (32 oz.), \$1; dealers 25 per cent on 12 qts.; 35 per cent 25 qts.

Hart-Bell—Utility Products Co., Times building, New York.—A mechanical device for conveying water from the outlet pipe on the cooling system to the intake manifold, where it is drawn into the cylinders and converted into steam. The latter acts as an oil solvent and loosens the carbon in 10 or 15 min. The attachment also provides auxiliary air for economical running. \$5; dealers, 30 to 50 per cent, according to quantity.

Opco — American Oil Products Co., Buffalo, N. Y.—A liquid which may be introduced through the spark plug holes, through the manifold when the motor is running, or mixed with the gasoline. About 4 oz. are required per cylinder for a badly carbonized motor, and an ounce per cylinder every month thereafter. Per can of 32 oz., \$1; dealers, 25 and 5 in dozen can lots; 5 per cent for cans.

Wang—Van Tilburg Oil Co., Minneapolis.—A liquid carbon remover which is put into one cylinder at a time, enough being used to fill the combustion chamber. Allow the liquid to stand one hour in each cylinder. Per dozen qts., \$8; ½-gal., \$15, and gal., \$27; dealers, 40 per cent.

Harvey—Harvey Chemical Co., Lafayette, Ind.—This is a liquid carbon remover. It is put into one cylinder at a time and allowed to stand from 1 hr. to over night, depending on how badly incrustated the motor is. Then the liquid is drawn off and used on the next cylinder. Quart, 85 cents; 2 qts., \$1.65; gal., \$3.

Corasco—Carbon Remover Sales Co., Syracuse, N. Y.—The liquid is injected into the cylinders through the spark plug holes while the motor is hot, the liquid vaporizing and filling the cylinders. From 1½ to 3 oz. should be used per cylinder, depending on the size of motor. It is best to allow the motor to stand over night. Per can, \$1 (about 1 qt.); dealers, 25 per cent in lots of 12 or 24; 5 per cent 10 days, 30 days net.

Carbon-not — Carbon-not Sales Co., 58th street and Broadway, New York.—A liquid chemical compound which is allowed to stand in the combustion chamber for 20 min. to 3 hr., depending on the amount of carbon. Do one cylinder at a time. After carbon is loosened the motor is raced to blow it out; pts., \$1.25;

qts., \$2.25; gals., \$7.50; dealers, 33⅓ per cent.

Thompson—William R. Winn, 143 Maiden Lane, New York.—From a cylindrical container on the dash a pipe runs to the manifold. For carbon removing the container may be filled with water or kerosene and then the motor is operated while the liquid flows into the manifold. The device may also be used as a primer; \$12.

Orolo—Orolo Mfg. Co., Louisville, Ky.—After motor is thoroughly heated, 2 or 3 oz. of the mixture is placed in the cylinder that has its valves closed. Allow it to stand for 15 min., then start engine and race it for a few minutes. Per can, \$2.50, enough for 12 cylinders; dealers, \$18 per dozen.

Worko—Worko Co., Racine, Wis.—Two cubical tablets are placed in each cylinder and the motor is operated until all the carbon is removed. The battering of the tablets between cylinder and piston loosens the carbon and it is blown out of the exhaust; 24 tablets, \$1.72; dealers, 25 per cent for less than 1 dozen; 33⅓ per cent for 1 to 2 dozen, and 40 per cent for from 3 to 6 dozen.

Michener—E. S. Michener, New Castle, Pa.—A soft copper composition chain formed from light gauge wire is inserted into one cylinder while the motor is operated a few minutes on the others. The buffeting of the chain between cylinder and piston knocks the carbon loose. 75 cents, or three for \$2; dealers, \$5.50 per dozen.

Anti-freeze

Thermite—Northwestern Chemical Co., Marietta, O.—This liquid anti-freeze solution is put up in cans. Undiluted it freezes at 70 deg. below zero; half Thermite and half water freezes at 16 below zero. One filling is said to be sufficient for a season, except for losses through overflow and leaking. Put up in gal. cans, \$1.25; cans packed six in a case, \$7.50 per case. A freezing chart and scale is printed on each can. Larger quantities are put up in containers holding 5, 10 and 50 gal.

Marvin—Imperial Oil Co., 3124 Locust street, St. Louis.—A liquid solution used undiluted; stands a temperature of 10 below zero and has the same boiling point as water.

Can't Freezit—W. B. Heston Reality Co., 145 North High street, Columbus, O.—A liquid put in undiluted. Water added to care for evaporation. 50 cents per gal.; dealers, 35 per cent.

The Motor World Simplified System of Accounting

For Dealers and Garagemen—All in One Book, Under One Cover

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Instalment No. 5

INSTALMENT No. 1 of these articles described Forms 1 and 2.

Instalments Nos. 2 and 3 told how to use Form 1, the Cash Receipts and Sales Record.

Instalment No. 4 last week took up the entries on Form 2, the Cash Paid and Expense Record, down as far as and including Entry L. This instalment will conclude Form 2.

Depreciation (Entry L)

Let us now take up the question of Depreciation. This is one of the most important parts of your Expense Record and you should understand it thoroughly. By Depreciation, we mean the lessening in value of some of your property, or assets.

If you buy an automobile and use it, it is worth less every mile you run it. If by the end of five years the automobile is worth practically nothing you are able to know that it has depreciated in value one-fifth every year, or 20 per cent. Therefore, if the car cost \$1,000, it depreciated \$200 every year, and if you did not include that \$200 as an expense your accounting was faulty.

In Entry C, Form 2, we showed the purchase of a lathe which cost \$700. When we make up the financial statement of our business we include this lathe as an ASSET, as we do all other equipment, furniture and fixtures.

This lathe cost \$700, but it is not fair to charge \$700 against the business during the month in which the lathe was purchased, because, if this were done and if the profits of the business during that month were only \$600, the books would show a loss during that month of \$100. This you can readily see would be a false statement, because the chances are the business really earned \$600 during the month in question.

On the other hand, it would be just as improper not to charge part of this expense each month. We do this by deciding how much we should charge off each month and entering it on the Debit

side under Expenses and calling it DEPRECIATION.

Let us explain in detail, and, for the purposes of explanation, let us use the \$700 lathe. Let us assume that the lathe is good for about ten years. On this basis, it depreciates every year one-tenth

amount of depreciation on all our property.

In order to take care of this depreciation, we must have a PLAN of some kind because if we did not, and if we came down to the end of the ten-year period and had to buy new equipment in a lump sum, it would affect our business. This plan is called

This Week

Entry L—Charging Off Depreciation.

Entry M—Paying Interest.

Entry N—Miscellaneous Expenses.

Entry O—Charging Cost of Stock Sold.

Entry P—Reserve for Bad Debts.

Last Week

How to Charge Expenses.

Entry A—Buying Stock.

Entry B—Buying Stock.

Entry C—Buying Equipment.

Entry Q—Paying Bills Payable.

Entry D—Paying Wages.

Entry E—Buying Supplies.

Entry F—Paying Electric Bills.

Entry G—Paying Insurance.

Entry H—Paying Water Bills.

Entry I—Paying Rent.

Entry J—Repairs to the Building.

Entry K—Paying for Advertising.

of its cost. This means that every twelve months we should charge off 10 per cent of \$700, or \$70. Having determined that we should charge off \$70 each year, we divide the \$70 into twelve parts and each month charge off one of the twelve parts, which is \$5.83.

We have now determined the monthly depreciation on this lathe. In other parts of our business there is other equipment which must be handled in a similar manner. Suppose we have in the office a new desk which cost \$20, and which we estimate we shall want to replace by a new one in ten years. In that case we will charge off \$2 a year.

We should go through our whole plant in this manner and ascertain the proper

Setting Up a Reserve

This reserve is set up in our financial statement. Take the case of the lathe again. One side of the statement would show the valuation of the lathe, and the other side would show an equal amount at the end of ten years that would be called a RESERVE for depreciating this equipment.

This means that we have set this \$700 up as one of our LIABILITIES. It is a transaction on paper only, and does not involve the passage of real money from one department to another.

A LIABILITY is an amount that the business owes, or is liable for. You may say that this Reserve is not a liability, but if you stop and think you will readily see that the equipment that is being used is liable. It owes a debt to the business, or the proprietor, and that debt is expressed in this way. This must be so, for we charge the business for the service the equipment has rendered in the next entry.

To understand how we enter this on Form 2, look at Entry L. We have estimated the depreciation for different departments and have now to make our Debit entry. We ask: What part of our business RECEIVED THIS BENEFIT? It is plain that the Gasoline Department receives the benefit of the equipment that is being DEPRECIATED, so we enter the monthly depreciation of the gasoline equipment under the expenses of that department on the Debit side. We do the same with other departments.

We now have to make our Credit entry. We ask: What part of our business gave this benefit? No ACTUAL CASH has been passed, has it? The

What part of our business received this benefit?

The money was not borrowed for the use of the Gasoline, Repair or any other income earning department, was it? It was for the business as a whole. If the manager had not been able to get this money the result might have been disastrous; so it was the managing or General Department which received this benefit; therefore, we Debit this \$2.50 interest to the General Department.

If a note was being paid to us and it was ourselves who were receiving the interest, it would, of course, go on Form 1, which is for ALL RECEIPTS of money. In that case, since it was not received by any of the regular income departments, we probably would call it MISCELLANEOUS income, or INTEREST EARNED.

Petty Cash

(Entry N)

We now have an entry that is simple, but it often proves puzzling to the man who is unfamiliar with proper accounting. It is the payment of all sorts of little bills, such as to the newsboy, to the iceman, for carfare, and for any other small amounts of miscellaneous expenditure.

If we were to enter each one of these expenditures on Form 2 every time a nickel or a cent was spent, it would necessitate a lot of bookkeeping and would take up space on the form.

We take care of this by what we call a PETTY CASH FUND. We know from our experience that these small expenditures amount to a certain sum for, say, a week, so we draw a check on the bank for, let us say, \$5, and call it Petty Cash.

This Petty Cash we put into the cash drawer and every time we pay the newsboy or the iceman we take the money from the drawer and keep track of the

items in a little note book or on a slip of paper, or elsewhere.

Then, when the Petty Cash Fund begins to get low, and is down to, let us say, 50 cents, we draw a Petty Cash check for \$4.50, which brings the Petty Cash Fund back again to \$5.

This procedure we keep up from week to week and month to month, and it saves us a lot of labor. Each time we draw a Petty Cash check we make an entry on the Expense Record, Form 2, similar to Entry N.

On this particular occasion we draw a Petty Cash check for \$4.55; we run back through the expenditures and find that since we drew the last Petty Cash check \$1 has been used by the General Department, 30 cents by the Gasoline Department \$1.25 by the Repair Department and \$2 by the Parts and Accessories Department. It is plain that the benefit has been RECEIVED by the departments that used the money, so we make the Debit entries to these departments. The benefit, of course, came from our CASH, so we Credit Cash with the amount of the check and under To Whom Paid explain that it is "Petty Cash."

There is always a tendency on the part of an inexperienced accountant to call expenses that are hard to classify MISCELLANEOUS. Unless judgment is used in this matter you will find at the end of the month when the income and expenses are drawn off, that Miscellaneous Expense will be one of the biggest items in the business.

In nearly every case, Miscellaneous Expense should be the **SMALLEST ITEM** in the expense statement, and there are bankers who use this as a means of telling whether a business is being properly accounted. If a man applies for a loan to these bankers, and if his miscellaneous expenses—or his miscellaneous income—are unduly large, the banker rightly concludes that there is something wrong with the man's account-

ing, and he is not likely to be given credit.

A large MISCELLANEOUS expense is the EARMARK OF INEFFICIENCY IN ACCOUNTING.

Charging Cost of Merchandise Sold

(Entry 0)

You of course remember that on Form 1, under our Income Accounts, we credited the various departments with the sale price of merchandise that was sold by these departments. When we sold two spark plugs for \$2.50 we entered \$2.50 as Income for the Parts and Accessories Department. This, of course, is NOT profit, for in order to determine the profit of the Parts and Accessories Department we must subtract from this gross income the expense of running the department, and also the cost of the merchandise that was sold by this department.

At the end of the month we will have the sales of, let us say, ten spark plugs by the Parts and Accessories Department, and there will also be entered the sales of a large number of other articles. These spark plugs cost us perhaps 60 cents each, which leaves us a profit of 65 cents on each plug.

At the end of the month we go back through our Accessories Department Sales and find that the plug sales were ten in number. The cost of the plugs is 60 cents each, which means that for the month the cost of plugs sold was \$6. We count through the department for the month and find how many horns we sold and what they cost us. We do this for all our parts and accessories and, at the end of the month, are able to find the cost of all the goods that were sold by the Parts and Accessories Department. This, of course, must be included in our expenses.

the Close of Instalment 4? Here Are the Answers

WORLD issue November 24, 1915

MOTOR WORLD SIMPLIFIED SYSTEM Copyrighted										CASH PAID AND EXPENSE RECORD										DATE	
D E B I T S										C R E D I T S											
EXPENSE ACCOUNTS										CHECK NO.		ALL CASH PAID		ALL OTHER ACCOUNTS		TO WHOM PAID					
PARTS & ACCESS. DEPT.		CAR SALES		ALL OTHER ACCOUNTS																	
AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT						
# 1010	50 00 Wages						Week 12/11/15	263	500 00						Payroll -						
1011				50 00	Acct. Payable			264	25 00	25 00	Custom. Acct Rec.				Smith Jones & Co.						
1012								265	10 00						Daily Herald						
1013							Customer's acct.	266	380 00	20 00	Cash Disc. Taken				B.B. Line Co.						
1014				5 00	James Smith.			267	5 00						Will Casey						

For the present let us confine ourselves to accessories. We have found that the cost of accessories sold during the month was \$295. We have now to make a Debit entry on Form 2. We ask: What part of our business received this benefit? It was, of course, the Parts and Accessories Department, so we Debit Parts and Accessories with \$295, and opposite this Debit entry explain that it is "Cost of Accessories Sold."

We have now to make a Credit Entry, and we ask: What part of our business gave this benefit? When these accessories were bought they were put into stock, and on Form 2 were Debited to our STOCK ACCOUNTS as in Entry B. When there was a call from a customer, the Accessories Department took these accessories from stock and sold them; therefore benefit came from our STOCK, so we Credit this \$295 to ACCESSORIES STOCK. The entry is made under All Other Accounts.

As in the case of Depreciation and Reserve, this transfer of goods and money is purely one within our business, and is simply a matter of accounting. No money was transferred, so it is classified as a JOURNAL ENTRY.

Let us similarly find the cost of gasoline sold, and make the entry. Turn to Form 1. By going back over the sales slips in the Gas, Oil and Grease Department, Columns 9 and 10, we find we sold 60 gallons of gasoline at 16 cents a gallon, a total of \$9.60.

While the operator is becoming familiar with this system it is perhaps best to make this Expense Entry every day, but, since we are working on the last day of the month in these articles, and, since the garageman will probably make this entry monthly after he becomes familiar with the system, we are making it here as a monthly entry.

Let us assume that the sales slips show that 42,580 gallons were sold during the month. It cost us 10 cents a gallon, which makes the cost of the gasoline sold during the month \$425.80. The entering of this on Form 2 is similar to the entering of the Cost of Accessories Sold. For the sake of simplicity, we put all these cost-of-merchandise-sold items on one line. We Debit the Gasoline Department with \$425.80, Credit GASOLINE STOCK under All Other Accounts with the same amount, and call it a JOURNAL ENTRY.

We suggest that this entry be computed at the close of business each day, when the system is first installed, especially in the Accessories Department, where a variety of merchandise is sold each day.

When we make up our statement at the end of the month, we subtract MERCHANDISE SOLD from the MERCHANDISE RECEIVED during the month and ON HAND at the beginning of the month, and include this in our

statement. This will be touched upon in detail later.

At certain periods a STOCK INVENTORY should be taken and the value computed to see if it agrees with the amount carried on the books.

If the computation and the book figures do not agree, it is for one of three reasons.

1—Error in accounting.

2—Sales made and no record entered due to carelessness.

3—Leakage, or dishonesty of employees

Thus we find Double Entry bookkeeping again acting as a check on losses. The more frequently the stock is inventoried, the quicker such discrepancies will be discovered.

Reserve for Bad Debts

(Entry P)

This entry is one that is made only where a CHARGE business is carried on. It is also one that thousands of supposedly good business men do not make until experience has taught them otherwise. The entry is that of providing a fund out of the income each month to take care of losses that occur later on through failure to collect from customers.

Perhaps you say, "If I thought I would never be able to collect, I would not give the customer credit, so why go to the trouble of setting up this reserve?" The answer is that if you are ALWAYS able to tell WITH CERTAINTY who will and who will not pay, you are wasting your time in the garage business, for there is an enormous field as credit man for persons of this ability. The fact is that these emergencies arise in every business, and every good accountant carries a RESERVE FOR BAD DEBTS.

If you do not carry such a reserve, and if it becomes necessary to wipe the slate and cancel certain debts, you are in a bad hole if you have NO RESERVE.

If you some day decide you are going to clean off a lot of these debts, and charge off \$500 in one month, you are unjustly decreasing the profits of your business for that month. If you do that the business will show a loss that month whereas in reality it made a profit. If you should continue to carry the accounts as an ASSET, your financial statement would be MISLEADING, because when an account ceases to be collectable it is not worth the paper it is written on.

Each month after Form 1, the Cash Receipts and Sales Record, has been totaled and balanced, we refer to Customers Accounts on the Debit side, and find the total, in this particular case \$2,533.78, that was charged to customers during the month.

Will we be able to collect all of this? If we did not think we could collect it we would not have charged it, but bus-

iness practice tells us that there is some of it we will not be able to get, so we discount the future by adding \$50 to our expenses and calling it RESERVE FOR BAD DEBTS.

This means that before we declare our profits this month, we deduct \$50 from our income and CARRY IT IN OUR FINANCIAL STATEMENT AS A RESERVE. We put it aside for a rainy day.

Supposing that before the end of the next month we find it necessary to use \$30 of this reserve in cancelling uncollectable debts. This brings our reserve down to \$20.

From our total earnings next month we deduct another \$50 by charging it to General Expense, which, added to the \$20 left in the Reserve, brings it up to \$70.

If we should find after operating this way for six months that the amount set up was too high we merely reduce it to \$40 or \$30 or less, as necessity seems to require.

On the other hand, if we find that the amount is too small, we set up a larger sum next month and incidentally we pay more attention to the manner in which we extend credit.

It is well, however, to have a reserve sufficiently large to cover the account of average size, so that if a customer should go bankrupt it would not demoralize our accounting system and our business.

The garageman should watch his accounts carefully. Each month he should know HOW MUCH he has charged, and how it COMPARES with his charges for the preceding month. He should WATCH HIS COLLECTIONS in the same way, and if the charges begin to increase or the collections begin to decrease he should promptly conduct an investigation and find out what is the matter with his business.

HOW HAVE YOUR CHARGES AND COLLECTIONS COMPARED FROM MONTH TO MONTH DURING THE PAST YEAR? ARE YOU DRIFTING TOWARD THE ROCKS?

The same procedure applies in the case of allowances to customers on repair bills and other items. While it is bad practice to throw off on bills, it nevertheless has to be done now and then as a matter of policy, and if there is no provision made for it the accounting is likely to be inaccurate and the story of the business, as told by the books, untrue.

The Recapitulation

We now proceed to balance Form 2. If we are making some of these entries daily, we add them up daily as we have done in Entry X and bring forward the totals of preceeding days as in Entry Y. If entries X and Y are added, Entry Z will be our expenses to date.

It is, of course, impossible to make daily entries of depreciation, rent and other monthly expenses. In our explanation of Form 2, we assume that those entries which are brought forward in Entry Y consists of wages, petty cash, and other expenses, which it is possible and advisable to enter during the month as they occur. However, it should not be necessary to use many of Form 2 during the month. The greatest use of forms will be Form 1 and Form 3.

On the Debit Side

Having totaled all our columns on the Debit side, we proceed to line them up for addition at the bottom of the form. Taking STOCK ACCOUNTS, we divide it up into "Gasoline, \$750," and "Accessories, \$87.50," and at the right of these two figures (bottom of the form) put \$837.50, which is the total of our STOCK ACCOUNTS. We take all our Expense Accounts and treat them in a similar manner, and at the right of them put their total, which is \$2,686.56. We split OTHER ACCOUNTS up into Bills Payable, Notes Payable and Repairshop Equipment, and put the total, which is \$900, at the right. We then add up and find that the grand total is \$4,424.06.

On the Credit Side

We next run down through the All Other Accounts column on the Credit side and pick out the various items, which total \$1,498.05. Our All Cash Paid totals \$2,926.01. We add up and find that our total Credits are \$4,424.06.

Our books balance; the accounts are correct.

You will note that on the Credit side on the bottom of the form in the Recapitulation is this entry: "\$2.25, Income, Cash Discount Taken." We have stated that this form is for the entry of expense, and such is the case; but this \$2.25 is an INCOME and NOT an expense, and next week when we make up our FINANCIAL STATEMENT and bring the recapitulations of Forms 1 and 2 together we shall include this \$2.25 with our in-

Try These Entries—Answers Will Appear Next Week

QUESTION No. 1015

The total overhead (General) is \$500 per month. The Departments are Gas, Repair and Storage, and each earns about as much as the other. How should you distribute the \$500 overhead?

QUESTION No. 1016

The overhead (General) amounts to \$800 per month. There are two Gas Stations; the Repair Shop and Salesroom occupy about one-third of the building; Storage about two-thirds. How should you split the overhead on this basis?

comes on Form 1, and shall include in our expenses on Form 2 the Allowance (Entry F, Form 1) and Bad Debt (Entry I, Form 1) items on Form 1.

This concludes Form 2. Next week we shall take up the compiling of a FINANCIAL STATEMENT at the end of a month, and shall show Form 3,

the customers' account sheets, and shall explain its use.

NOW—If there is a single point in any of these System Articles upon which you are not ABSOLUTELY CLEAR, write to Motor World's System Editor and ask for a FULL AND COMPLETE EXPLANATION.

Questions About the System

Question—Why do you charge the rent on Form 2 to the Storage Department?

Answer—This was charged here simply to show the payment of rent. No one rule can be laid down to determine where such items, which are most generally known as overhead, should be charged.

In this case it was charged in total to the Storage Department, for the reason that the Income, or Earning, from Storage was the biggest in the business. If the Income from Storage and Repairs was 50-50, it would be just as proper to charge one-half to each department, and so with light, and the manager's salary, etc.

There is one disadvantage in operating this way. By dividing the overhead in this way, it is often quite a job to tell accurately just WHAT the total overhead is for the month. By first determining what items are to be included in overhead, and then placing them in the General Expense Column, the total shows up at the end of the month like a sore thumb. After we have found the total, it is an easy matter to divide it in one-half, or one-third, or in the proportion that each department should bear; at all times remembering that the original plan of distributing this expense should be adhered to for at least a year, and for all time unless some radical change in the business takes place.

RANDOLPH MOTOR CAR CO.
Moberly, Mo.

Question—Regarding the Simplified System of accounting: Would you explain the steps taken when an entire inventory of the business is taken? This inventory would be necessary before changing systems? Or, will this be explained later in the instalments?

Answer—The taking of stock is to be taken up in detail a little later in the series of articles on Motor World's Simplified System of Accounting. In the meantime, however, the necessary steps in brief are as follows:

A complete list of all the parts and accessories in the garage and owned by the garage should be made. This can be done easily on cards about 6 x 4 in., which can be obtained from any loose leaf manufacturer, and are styled inventory cards. In addition to listing each article, its cost price must be given.

The total of these cards is then known as Accessory and Parts Inventory. The Gasoline Tank should be measured, and the number of gallons, multiplied by the cost, would constitute the Gasoline Store or Inventory.

Both of these inventories are assets of the business. They are the property of the business, and if they were real estate instead of inventories, there would be no question regarding their true value.

An inventory of this kind should be taken at the close of the business on the last day of the month preceding the day you intend to install a new system.

I. RAE COWDIN
Fort Collins, Col.

Question—We have been reading the last two numbers of Motor World's Accounting System.

As we have no system worthy the name at present, are considering seriously ordering yours. However, we wish to ask if these forms are of necessity printed as Forms 1 and 2, or if we could obtain forms with special headings under the income accounts, etc., such as would be applicable to a small battery and electric shop such as we operate?

Would you kindly suggest an alteration in the forms to adapt them to the above business? We sell new batteries and battery parts, repair batteries, do car wiring and electrical work on automobiles. Also handle lamps and electrical accessories for automobiles.

Please let us hear from you at your earliest convenience, as we are desirous of installing your system by the first of the year.

Answer—To have special headings PRINTED would be costly. So far as we can see, these forms will fit your business. Your sales of batteries, lamps and accessories could be carried under Parts and Accessories. If you want to divide them you could do this at the end of the month in your recapitulation. Repairing could fall under Repairs. If you wish a battery department and do not need the storage column you can with your own pen alter this or ANY OTHER heading to suit. Divide your business properly and make the form fit. Don't try to make the business fit the form or the system.

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Merry Christmas

BETWEEN friends at Christmas time there always comes a feeling that finds expression at no other time of year. It is the Christmas spirit—there is no other name for it—and in its warmth old, gnarly animosities die and make way for peace and good-will.

All through the year men toil and strive. They build for themselves—and for others. But at Christmas time there comes a lull in the whirl of every-day, and the toiler pauses and his thoughts turn from business to those of friends. It is so with our thoughts now.

Perhaps it is not possible for a corporation to have personal feelings; perhaps a corporation is only a machine, a mill that grinds. Perhaps—but The Motor World Publishing Co. does not choose to believe in this type of corporation ideal. It feels very personal. This corporate feeling is, after all, only the feeling of those who make up our organization.

To every one of its thousands of readers Motor World wishes a Merry Christmas. We do not know of a single reader to whom we may not extend this wish. We believe every reader is our friend. If there is one who is not we want him to be, and we want to know why he feels that he cannot be.

This Christmas marks the closing of one of the greatest years for this publication and also for its readers. More progress toward Better Business and Greater Profits has been made in

the trade than in any one year—or several years—that have gone before. Both our readers and ourselves have played a part in this development and we are all proud of it. We look forward to greater development.

As this great year ends—

But why say more? We could go on without limit. Our sole object in these few lines was to tell our readers that we are sincere—we mean it—when we wish you a—

MERRY CHRISTMAS.

Our Before-Show Issue

THIS issue of Motor World is our annual Before-Show Number. It marks an epoch. It is a mile-post in the industry. It summarizes what has occurred in the trade in the year that has passed and points the trend that is the foundation of the year and years to come. It is a volume for study, not for cursory reading. It should be preserved for reference.

The first pages of the book take up the New York show and the dealer arrangements. The "men you will meet" is important to the dealer who plans making new connections at the exhibit. There is a description of bodies, a section on the year's trends, a digest of the new cars, a division of accessories, and, of course, our regular departments. The dealer who contemplates visiting the show will find his visit more pleasant, valuable and instructive if he first familiarizes himself with the new things and the arrangements by a study of this issue.

Have You a Sore Thumb?

The Motor World Simplified System of Accounting

Instalment No. 5

ARE there any "sore thumbs" in your business? There may be, and perhaps you don't know about them.

A "sore thumb" in business is a part or department which is as unpleasant to the proprietor as a sore thumb on his right hand. It is a department which loses money, or an expense which is abnormally large.

Have you any of these "sore thumbs" in YOUR business?

If you have them and know about them, you, of course, are trying to cure them. But if you haven't a proper business system you probably have a lot of them and know nothing whatever about them.

Without system these "sore thumbs" are not conspicuous. They are hidden under the soft padding of no system, and in their concealment they become sorer and sorer until the infection spread and the business dies of an epidemic of "sore thumbs." There have been many such funerals during 1915.

A good business system will tear the coverings from these "sore thumbs" and make them stand out like an unbandaged sore thumb on your right hand. The system will show them up and make their sight painful to you. They will be so painful you'll simply have to cure them.

Maybe your "sore thumb" is your repairshop; perhaps it is losing money, and you don't know it. Maybe it is your BAD DEBTS. It may be your storage rate. It may be any one of a number of things. Show them up.

This week's instalment of Motor World's Simplified System of Accounting concludes Form 2, the Cash Paid and Expense Record. Read it! And if you haven't read the others go back and read them. Study this system. And if you haven't a proper system, get one. If you like the Motor World system, get it. If you like some other, get that. But get SOME system.

Show up the "sore thumbs."

A new year is coming. Start it right.

'Tis Not What You Say—

TWO SALESMEN may be equally well posted on the car they are selling; each may have at his command the same line of talk, almost the same words. One may look as neat and businesslike as the other; they may seem equals in all things, yet one may make greater progress in selling than the other.

Several causes may prevail for this difference, but one cause that assuredly produces this inequality of result is that: "It is not what you say but how you say it."

The salesman who lacks confidence in himself, who has never fully sold himself on the car he is selling, who never has reached that mental plane where he is convinced that he is just as good a man as the prospect is partly beaten before he starts. He is a cripple in the game of business.

If you don't believe in what you are selling look for something in which you do believe and hook up with that. You will be doing yourself a favor. And NEVER, NEVER forget that as a salesman you are just as much a business man as any prospect and are entitled to respect—the respect of yourself, at least.

Push the Stock on Hand

IN selling any goods it is always advisable to make an effort to sell what is in stock. It is essential that stock be disposed of if the business is to be operated at a profit. Even if the demand from customers is for other articles, the dealer and garageman should nevertheless continue in his efforts to move the goods he has.

There are many instances in merchandising history where seemingly unpopular goods have been moved in the face of opposition. If there is danger of a product becoming a liability on the shelves, it is worth

while to spend considerable money in advertising and converting this stock into cash.

Just because customers do not come in and demand something you have, do not think they won't buy it. Make an effort to sell what you have, and, of course, always plan so to adjust your stock as to meet the demand as well.

Get Wise to Yourself!

"IT IS only a few days ago that I got wise to myself," said a young salesman in a northwest town.

This is what he meant: For months he had been wasting time. He said: "I kidded myself into thinking I was busy." He had pursued the daily program that is followed by thousands of salesmen. He had worked on prospects now and then when opportunity offered, but between times there were countless minutes—yes, hours—when he did nothing but "thought he was busy."

When he "got wise to himself" he began to improve this hitherto wasted time. He took a correspondence course in advertising and selling, he began to study trade papers, he began to study his business, he began to study himself. He will grow, because he has learned the truth of the poet's words when he wrote:

"Lost—Somewhere between Sunrise and Sunset—sixty golden minutes set with sixty diamond seconds. No reward is offered, for they are gone forever."

Botch Jobs

DID a botch job ever go out of your shop? If so, did you know about it? Botch jobs have given repairmen as a class an unsavory reputation. Garagemen and repairmen are now complaining that they are an object of abuse and that folks pick on them and say unkind things about them.

The garagemen who complain perhaps have cause for complaint. They undoubtedly are of the better class which does not believe in botch jobs. But the fact remains that botch jobs are the cause of the unkind things that are said. Every member of the trade should work for an eradication of this condition.

Oftentimes a piece of work will get nearly all the way through a shop before it is found that it will probably not be satisfactory. The temptation then is to "let it slide," or let it go out and trust to luck that it will not be discovered.

There seems to exist in some minds a disinclination to change what has been done. If a job has been completed the worker doesn't want to change it. He seems to have set up for himself some sort of rule which says that what has been done must be let to stand, whether right or wrong.

To start with, the garageman and repairmen should so systematize their shops that work will be done right the first time, but if a botch should result it is better to tear it all down and start right.

WIDE-AWAKE MERCHANDISING

FOR REAL VALUE MUST PLAN SHOW

Dealer Who Enters in Wrong Spirit and Without Plan Loses Part of Benefit

SHOW-TIME is grow-time for every one. It is an opportunity for the man who makes the car and accessory, the man who sells them, the man who buys them and the man who repairs and takes care of them.

Especially is it an opportunity for the dealer, the man who sells. And this is especially true in relation to the local show wherein the dealers of a city or a village unite in their annual bow to the public.

Get the Right Spirit

The dealer should enter the show in the proper spirit if he is to get value received for the money he puts into it. He should consider it a part of his annual merchandising plan else it will not avail him what it should. He should enter the show determined to get the last bit of good from it, and if he does this he will get results.

The Show an Opportunity

First of all he should view the show in the right light. He should not look upon it as an evil in which he is compelled by competition to take an unwilling part. There may be shows which because of their management and character may justly be so viewed, but the majority of dealer shows are in a better class. The dealer should regard the show as an excellent opportunity to get business.

Plan the Exhibit

Having this viewpoint, he should plan. He should first of all plan the most advantageous staging if his exhibit. He should get as good a space as arrangements will permit. Then he should study the space and place his cars. A single car in a well-planned exhibit is better than too many cars. There should be room in the exhibit for sightseers. They should not be crowded.

A little money spent in decorations is well worth while, provided it is not against the rules. Above all, the exhibit should be characterized by the neatness and atmosphere that makes a good impression on visitors.

Plans should be made for adequate and courteous attention to the public. Each member of the organization should be shown what the show means to the employer and employed. It is regrettable that in many shows the sales work is decidedly below par. Salesmen sit or stand at the back of exhibits behind the cars while possible customers wander in and out of the exhibit with never a person to even say, How do you do?

Cigarettes!

This is one of the most glaring deficiencies. In some shows salesmen smoke cigarettes while on duty. This is a rank lack of common civility. And even when not smoking or chatting among themselves the attendants do not "attend." They seem anxious for the ordeal to be over. Probably their feet are tired, but the show is one of the big opportunities of the year and it is so short and fleeting that a little thing like tired feet should never be let to decrease its value. As a practical physical suggestion, let show workers have two pairs of shoes, and change when the feet become tired. It is an established fact that this will render the work less arduous.

Advertising

In connection with the show there should, of course, be advertising. It should be hooked up with the exhibit, and should give the location of the space.

The exhibit should include literature—kept in a neat pile, not in a disorderly heap. Opinion is divided as to whether it should be handily located near the aisle or should be at the rear so the visitor must enter the space to get it. Probably the latter is best. It will at least stave off some of the catalog fiends.

But PLAN !

Every detail should be planned beforehand. The dealer should not start his cars for the show building and then begin to plan. He has invested money in the show; it is possible to reap a return in publicity and prospects; but there must be a PLAN.

PUT CHASSIS UP IN AIR AT SHOW

Give Every One a Chance to See It and Hear What the Lec- turer Has to Say

IT IS the stripped chassis that draws the crowd. This has been found true by a study of many shows. No matter how nicely a car may be groomed it is only a car after all, and the big throng of visitors has seen thousands of completed cars on the streets for years.

But the visitor has NOT seen the insides of the car. He may have had a glimpse now and then, but the car he saw may have been in a repairshop and far from clean. The bright and shiny chassis at the show is different. To the mechanical man it is an opportunity for showing off his knowledge and for comparing; to the unmechanical man the whole thing is a mystery that should be inspected.

Lecturer a Hit!

Last winter a seeming "hit" was made at some of the shows by lecturers who discoursed upon the chassis of their cars. These lecturers always drew crowds. The aisles were blocked whenever they talked. But there was one disadvantage: the front rank of the crowd could see what the lecturer was talking about, but those further back could see nothing.

Motor World offers this suggestion: Stand the chassis up on its side, elevate it 5 or 6 ft. above the floor and let the lecturer walk a narrow platform in front of or at the back of or all around the chassis. With his pointer he could then have his exhibit in full view of as many people as cared to look, whereas last winter's listeners could see little.

This plan can be carried out by any dealer. If he is not a good talker himself, he should have little difficulty finding a salesman or some other person who can deliver the "spiel." Of course, of the many who stop to listen, few probably are buyers, but one of the great advantages at the show is publicity, and this is one of the finest ways of getting it—a lot of it.

October 27, 1915

MOTOR WORLD 11

DON'T be misled by padded price lists. Don't fall for the false allowance. Some have prepared that little game for you by additional long discounts, some by a high list price and some by both. Don't try to make yourself think that your old car is worth more than it actually is. You are only fooling yourself.

MANY have started to copy. Note our prediction. Many more will follow. We told you the same story ten years ago. Well that gave us just ten years start. We have been continually perfecting this valve in the head.

WE are continually talking about twenty miles per gallon of gasoline on four and eighteen miles on three, marvelous hill climbing ability, etc. Make us prove it. Please give us the opportunity.

Then he lifts the book out, and the psychology of selling gets in its work; in the book, in terse, non-bombastic, not over-assertive style, are five Buick selling arguments

Scientific Selling

Climbing Back on the Structural Work of the Sale

“I THANK you ever so much for the attention you have given me. What you have said impresses me greatly, but I think I will delay for a time the purchase of a new car.”

“Sometime, Mr. Prospect, I wish you would look this over.”

The salesman's hand has come from his pocket and he remembers.

back to him with renewed energy and he remembers.

The salesman—

This is Johnson's idea as presented in Motor World October 27. Below is shown Fenton's adaptation of it

HE SAW AN IDEA AND ADAPTED IT

The World Is Full of Ideas, Waiting for Adaption

The world is full of ideas, thousands of which may be adapted intact or else may be used in a modified form. The successful man does not originate all his own ideas; he is also a skilful adapter of the ideas of others.


When the Northwest Buick Co., Seattle, saw in Motor World of October 27 the story of the psychological sales booklets that are used by John H. Johnson, of the Boston Buick Co., the value of the idea was recognized by Assistant Manager J. G. Fenton.

He adapted the plan, as is shown in accompanying illustrations. He got out two booklets. That entitled “Sixes, Let Caution Be Your Watchword” contained the three pages from the Johnson booklet that are shown in the reproduction of the Motor World page, the larger cut.


The inside of the booklet, “Knowledge Is the Key to Success,” is shown in the same cut with the covers of the booklets; 1,500 Knowledge booklets were mailed to practically all the Buick owners in and about Seattle. The Sixes booklet was handed to prospects in the salesroom. The booklets cost about 1 cent each.

As a part of the plan one each of the 1916 chassis was displayed in the sales-

Knowledge
Is the Key to
Success



“SIXES”
6666666666666666
LET CAUTION
BE YOUR
WATCHWORD



This is Fenton's adaptation of Johnson's idea, which is shown in the upper illustration

It is a notable fact that the man who thoroughly understands the mechanism of his car seldom has any trouble with it. His very knowledge leads him to better care and more intelligent operation of his machine, and nearly always prevents the little accidents which are so puzzling and exasperating to the average motorist.

Beginning November 15th we will have on display in our show room the chassis of all of our 1916 models.

We invite you to call afternoon or evening at which time we will explain the care a Buick should receive to give the owner the greatest service at the least expense.

Northwest
Buick Company
The East Pike Street
Seattle

room in semi-disassembled form with mirrors beneath and various parts and units were shown on tables. The batteries were shown in “exposed” form, this feature including new plates and also plates damaged through lack of attention. The results of the plan were gratifying.

Motor World makes this suggestion: Make up your mind that inside of one week you are going to get an idea from somewhere and make it part of your business. Then look for the idea. Then use it. Make a note on your calendar and ask yourself one week from now if you

HARD PROSPECTS NEED HARD WORK

Salesman Should Not Slacken Effort on Hard Sales

One of the odd characteristics of selling cars is that no matter how hard it is to sell a prospect he generally becomes a satisfied owner unless consequent treatment causes him to be otherwise.

Because a prospect seems unwilling to buy is no reason why the salesman should slacken in his effort. The prospect seems—and is—unwilling because he has not been fully sold. If he is sold he will buy, and if greater effort will sell him it is a time for that greater effort and not for a slowing up.

FRESH AIR AND NO DIRT

Clean floors, show cases and counters attract trade. The surest way to promote cleanliness is to have good light. The cheapest things in this world are light, air and water.

Proper ventilation is very important. People are often unconscious of good ventilation, but bad ventilation is undesirable and unhealthy.

A clean sidewalk is sure to impress the passerby and draw his attention to the windows.

have done this. Do it two or three times and you won't have to look for ideas; they will jump up and confront you.

GOING TO THE BIG SHOWS?

Are you going to the national shows in New York or Chicago? If you have not made up your mind you really should give this matter consideration.

If you are within reasonable distance of these exhibitions you doubtless can well afford the expense. It will not be great. Aside from the educational value, it does each man good to shake the routine of business for a few days.

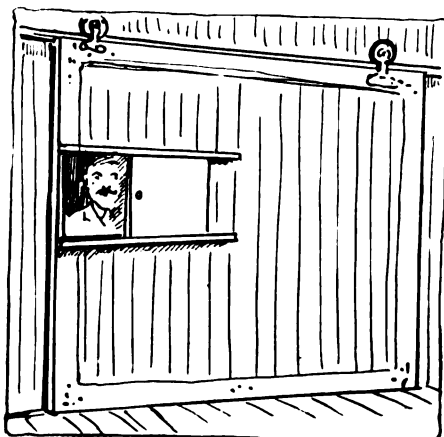
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

To Keep Intruders Out

(No. 398)

To keep intruders out of the shop it is necessary to have the big door locked, but to enable communication between foreman and customers a small door, about 1 x 2 ft., should be used. This may be a sliding fit in the big door.—Elmer Johnston, City Garage, Portchester, N. Y.



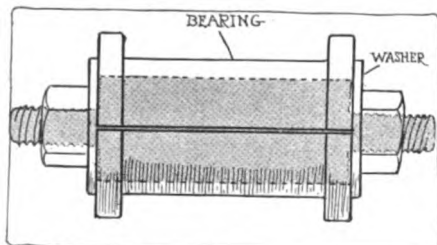
(No. 398)

Intruders can look in but must stay out

Machining Split Bushings

(No. 399)

Machining the outside of a bronze bushing is something that may offer difficulty to the repairman, and the illustration shows a simple solution. The bearing casting is first bored and then the ends are faced. The bearing is split and then the two halves are clamped over a mandrel which is the same diameter as the interior of the bushing. If shims are provided for adjustment they are put in before the bearing halves are clamped on the mandrel. When everything is in readiness the mandrel is put in the lathe and the bushing finished.—W. A. Raban, Portchester, N. Y.



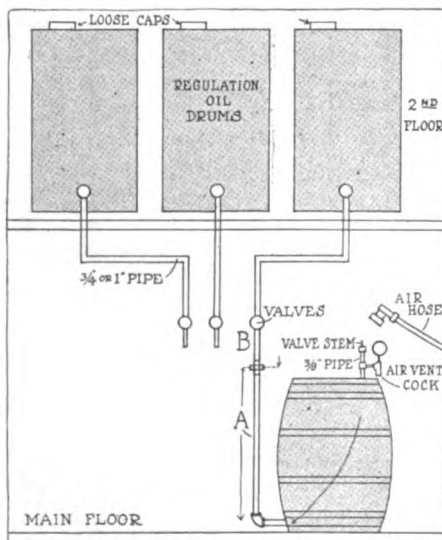
(No. 399)

If the bushing is clamped it can be machined

An Oil Storage System

(No. 400)

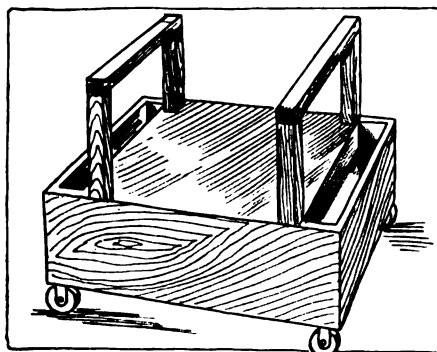
The accompanying illustration shows a convenient method of storing oil in



(No. 400)

Oil is forced by air pressure from the barrel to the tanks and drawn from the tanks by gravity

overhead tanks, from which it is drawn by gravity. Three barrels are shown and these are connected by pipes to a common point, where the oil can be drawn from any of the barrels by opening a globe valve. The tanks are filled directly from the barrels the oil is received in by the use of air pressure. First the full barrel is brought close to the oil pipe B, and then it is turned on



(No. 401)

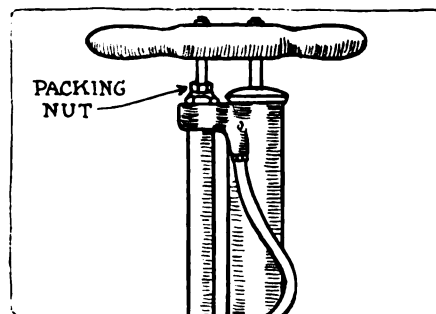
This stand holds motor and also small parts

its side and a hole bored in one end to allow the insertion of the pipe A. The barrel is then placed on end and A is connected to the oil pipe B. Then a hole is drilled in the top of the barrel and the gauge and fittings C are put in place and the air hose attached. Just a few pounds air pressure are required to quickly empty the barrel. The tanks are provided with air vents so that the oil will flow freely.—Wm. G. Gibson, Kimbark Garage, Chicago.

Combination Motor Stand

(No. 401)

A motor stand is such a simple thing, yet here is one that has a feature worth calling attention to, and that is that it is a sort of table and stand combined, for directly beneath the motor is a large flat surface on which parts and tools may be placed without bending the back. Incidentally this particular stand was designed for a unit power plant.—H. Crymble, Chadick-Delamater Co., New York.



(No. 402)

This shows how a pump gland can be packed

Pump Gland Repair

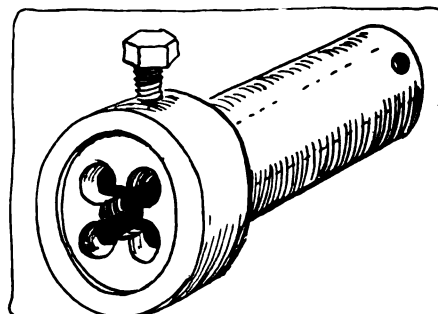
(No. 402)

When leakage occurs in the packing gland of the small cylinder of a two-cylinder foot pump, remove the packing nut and taper the bore with a large drill sufficiently to allow the packing to be forced in when the nut is turned down. Then remove the leather washer and duplicate it with a steel one. Replace the washer, wrap the rod with Mogul packing and force the nut down until the leakage stops.—P. F. Barbican, Stilling's Garage, McHenry, Ill.

Rethreading Spring Bolts

(No. 403)

Rethreading spring bolts may be greatly facilitated by making a tool with a long shank, one end fitting over the die and the other into the die wrench.—F. W. Gear, Forty-ninth Street Garage, New York.



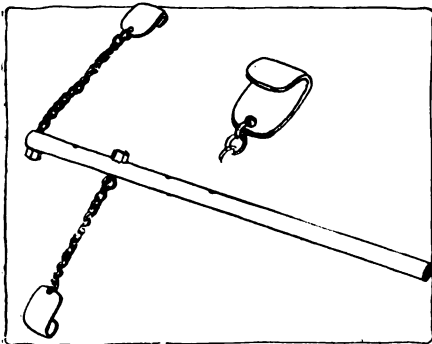
(No. 403)

A long shank on the die facilitates threading operations

Split Rim Remover

(No. 404)

A split rim removing tool has the advantage that it can be stored in very little space, thus making it desirable for carrying in the tool box as well as for use around the garage. It consists of a lever made out of 1-in. pipe, about 2 ft. long. To one end of this two chains are attached by eyebolts 6 in. apart, one being at the extremity of the lever. The ends of these chains carry hooks which fit into the flange of the rim. By pulling the lever the rim is contracted. Adjustment of the tool to different sizes of tires is made by moving one of the eyebolts back further on the handle, there being a series of holes for this purpose.—James Baldwin, New Harmony, Ind.



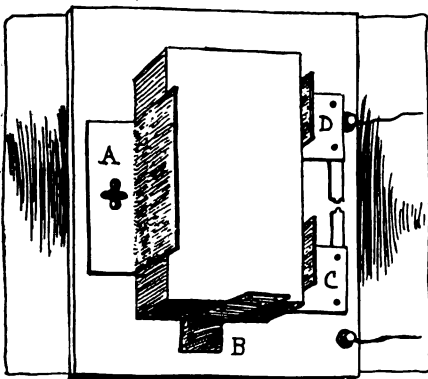
(No. 404)

This split rim remover is easily made and will do good work

Testing Ford Coils

(No. 405)

Where much Ford work is done a coil tester is desirable. The coil is laid flat on the test board with brass plates B, C and D in contact with terminals on the coil; B and D are low-tension, and C high-tension. A is a wing nut for holding the coil in contact. The spark gap is situated between C and D. A coil may be tested and adjusted to give best results by the use of this device.—M. R. Potter, Susquehanna Motor Car Co., Wilkes-Barre, Pa.



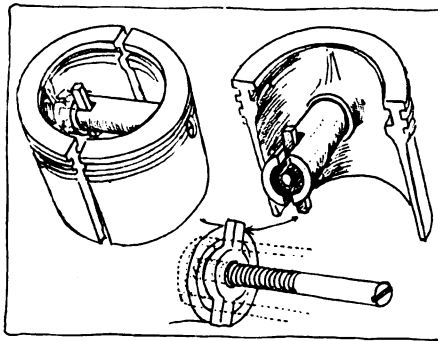
(No. 405)

For testing a number of Ford coils this is a handy device

Expanding Piston Lapper

(No. 406)

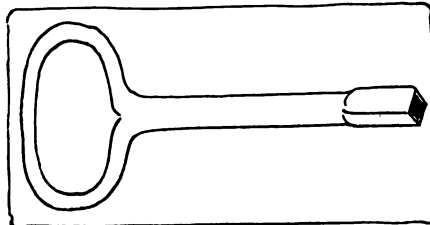
When there are many cars with one bore of cylinder to be overhauled, an expanding piston lapper made out of an old piston split in two will be found useful. A piece of tubing is brazed into one piston boss and another tube to fit snugly inside of it is brazed into the other boss.



(No. 406)

An expanding reamer for cylinders can be made of an old piston

The two halves are kept in line by slotting the two tubes and inserting the member shown at the bottom of the sketch in these slots. Adjustment is obtained by screwing on the screw as illustrated.—Wm. McIlvrid, Colt-Stratton Co., New York.



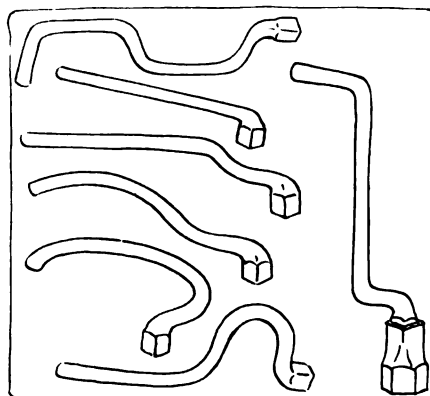
(No. 407)

Wristpin nuts are hard to get at—but not with this wrench

Removing Wristpin Nuts

(No. 407)

A handy tool for removing the screws or nuts holding the wristpin is a socket type with a fairly long shank and a large loop for a handle. The handle is designed so that the work can be done with one hand and at the same time there is sufficient leverage.—James Baldwin, New Harmony, Ind.



(No. 408)

These wrenches have been bent so that they will reach almost anywhere

Homemade Wrench Set

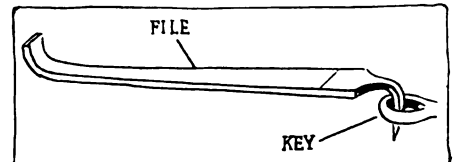
(No. 408)

The accompanying cut shows an interesting set of wrenches for use in cramped and inaccessible places; there are special shapes for every conceivable condition. All these wrenches are made with 1/2-in. square ends to fit the sockets of a socket wrench set.—James Baldwin, New Harmony, Ind.

Cotter Puller from File

(No. 409)

A cotter pin puller that is powerful in its action and rapid is made from an old flat file. The handle end is drawn to a fine point and bent at right angles so that it can engage the cotter pins and the other end is also bent at right angles so that it may be struck with a hammer, the blows of which withdraw the cotter pin.—James Baldwin, New Harmony, Ind.



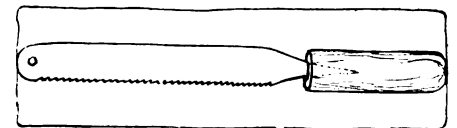
(No. 409)

A handy cotter pin puller can be made of an old file

To Roughen Inner Tubes

(No. 410)

The roughening of an inner tube that is to be repaired can be done more quickly and satisfactorily with an old hack saw blade than with sandpaper. The blade is cut down at one end and fitted with a handle. This tool is handier, more convenient and also has the advantage of durability.—Christian Neubig, Neubig's Garage, Paquemine, La.



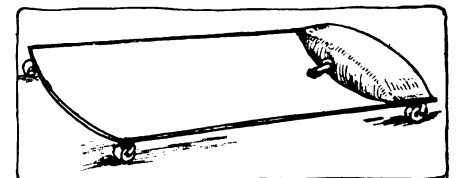
(No. 410)

To roughen a tube to be repaired an old saw blade is excellent

A Pneumatic Headrest

(No. 411)

A really comfortable head cushion for a creeper can be made out of a section of an old inner tube. About a foot of the section containing the valve is cut out and the ends are vulcanized so that it may be inflated to form a cushion. The valve stem points downward.—George Klauck, Stanley, Wis.



(No. 411)

An old tube makes a good head rest for the creeper

Balancing an Emery Wheel

(No. 412)

Much of the vibration of an emery wheel is caused by its not being truly balanced. If a wheel is given a knife edge balance before it is mounted the only noise made when it runs will be the swishy noise caused by friction with the air. The balance is effected by gouging out small pieces on the heavy side.—J. W. Lyons, Lyons & Co., Grand Forks, N. D.

Dealer's Legal Status

Show Problems—What May Constitute Misrepresentation
Who Loses If Car Is Destroyed En Route—Attaching
Car Sold to Debtor at a Show

By George F. Kaiser

WITH the annual automobile show may come disagreements resulting in actions for breach of contract, for misrepresentations, breach of warranty, and the like. It is well then to refresh our recollection as to what representations, warranties, etc., may be made without incurring unthought of pecuniary liability.

It should be remembered that false statements of material facts must not be made in order to induce a prospective purchaser to buy, because if he can show that he believed them; that he was justified in relying on them, and that they influenced his judgment when he was determining whether or not he would purchase, he may demand cancellation of the contract or retain the car and sue for damages.

The buyer also has the same rights when goods which he buys are not as warranted. Unless the dealer is able to win out on some technical ground, such as that the purchaser overloaded the car or had it repaired at some unauthorized place, the dealer will be in a less advantageous position financially than if he had failed to sell the car in the first instance.

WHO LOSES IF CAR IS DESTROYED IN SHIPMENT?

An interesting show problem is the following:

Suppose a motorist goes to a show and purchases a car with the understanding that it is to be shipped to him on some certain date, and, while it is on its way by freight, it is destroyed. Who must bear the loss, the purchaser or the dealer?

I do not know of a case where this actually has happened, but I am sure that there would be a very much surprised motorist if a case of this kind actually did happen and he was advised that the loss was his.

A case of this kind might come up at any time, however, and if the property had been shipped and was on its way the loss would fall on the motorist if the usual F. O. B. clause were used.

In an extreme case the motorist might even have to stand the loss if a car which he had bought were destroyed in a factory fire, as for instance, where he

had paid for the car and it had been set aside to be shipped to him and nothing remained to be done on it.

IS GARAGEMAN LIABLE IF STEAMER PILOT LIGHT CAUSES FIRE?

Editor Motor World:

I am wondering if you could assist us in answering a question regarding responsibility of garages in case of fire. My reason for asking you this is the fact that no doubt you are thoroughly familiar with responsibility of the garagemen in cases of this kind, and if you can aid us in answering the question your courtesy will be greatly appreciated.

Here is a suppositious case: A garage housing 30 gasoline cars and one steamer burns, due to an explosion of leaky gasoline in the tank of the steamer. In other words, the pilot light has been left burning during the night and this results in the gasoline catching fire.

Under the circumstances is the proprietor of the garage where this occurred liable for lack of ordinary care in permitting a steamer with its pilot light burning to be quartered among internal combustion cars? Are there any adjudications on this or similar cases, holding the proprietor liable for the value of the cars destroyed by fire, due to his negligence in permitting a lighted flame to burn?

Should you have any record of similar instances among your archives, kindly let us know, and also the disposition of the cases.

Yours very truly,

(Signed) G. D.

In reply to your inquiry we would say that garagemen are required to use ordinary care only to preserve property which they have in their possession as bailees, and they are not held responsible as insurers of the goods so held.

In the suppositious case you mention, there is a question of fact which would have to be decided by a jury if a court action were instituted. The question would merely be: Was the garage-

man using ordinary care when 30 gasoline cars and one steamer were housed together under the circumstances mentioned in your letter? Whether or not it would be lack of ordinary care to permit a steamer with its pilot light burning to be stored among internal combustion engined cars, is not a simple question. Whether or not the garageman knew the pilot light was burning would, of course, be very important in a case like this. Expert testimony could be introduced to show whether it was dangerous or not to leave a pilot light burning under such circumstances.

TAKE CARE OF THE "DEAD" STORAGE CARS

A seasonable warning to dealers is: "Take care of the cars which you have on dead storage." If this is not done, next spring, when these motor cars are again put into active service, claims for damages may be made against you.

Dealers should see to it that the cars which they receive on dead storage have no broken parts, no moth-eaten upholstery, etc., and if they are so damaged, careful note should be made of these facts, otherwise if fraudulent claims are made that these injuries were received while the car was in the custody of the dealer, it may be somewhat difficult to refute them; while if these facts are noted, the dealer should have no difficulty in successfully combatting the claim.

ATTACHING CARS SOLD AT A SHOW TO DEBTOR

While walking through the aisle at a recent automobile show with a friend, our attention was attracted to a fine-looking limousine. We looked it over and my friend, on examining the ticket attached to the car, exclaimed that it contained the name of a man who was indebted to him in the sum of several hundred dollars. Immediately he became interested and wanted to know if he could not attach the car or proceed against it in some way, as the man owned no other property which he knew of which could be used to satisfy a judgment. On investigation it was found that, although the contract had been signed and a deposit had been paid, it had been provided by the dealer that title to the car should not pass until after the show was over.

If this provision had not been made the dealer would very likely have been very much disgruntled to have the car taken from his possession by the sheriff before he had received the remainder of the money which was due him. As it was, however, the dealer was protected as the debtor paid up before the car was delivered to him and all the parties concerned were happy—excepting probably the debtor.

The Show, the University of the Motor Trade

In It Are Assembled, Says Reilly, the Knowledge and Inspiration of an Industry—It's Worth While Seeing

By Ray W. Sherman

THERE were seven or eight of them sitting around the open fire in the clubrooms of the Callawassa Motor Trade Association, running up the coal bill and waiting for a few more of the boys to arrive before the Show Committee had its weekly session. When the show season was young the committee met now and then. Later it met every week. Later it met every day, and at the finish it held a continuous session, with sometimes only the chairman present. But it met.

They talked of the Callawassa show on this occasion, and from that the conversation drifted to other shows—to the big show in New York, the daddy of all motor shows. They reminisced of Madison Square Garden and its drafts and colds and tired feet, and then Henry Bennett plumped into the conversational puddle with:

Worth All It Costs

"Are you going to the New York show this year, Reilly?"

"Oh certainly!" replied this dealer. "Couldn't miss it!"

"Wish I could afford to," lamented Henry, who was one of the town's well-known lamenters.

"Tush! Tush!" chided Ben Doyno, of accessory and supply store fame.

"I mean it!" asserted Bennett. "I honestly can't afford to go. I wish I could."

"Of course, if you haven't money enough to pay the carfare perhaps you are justified in staying home but unless you are in sore financial straits I think it's worth all its costs."

"Maybe it is," said Henry.

"We all need something of this kind for our own good as business men," continued Reilly. "If we get enough inspiration and wiping-away-of-cobwebs out of a trip to one of the big shows I think we will more than get our money back in the course of a year."

"To me," he added "this New York show is the University of the Motor Trade. It takes the place in our business that colleges and universities take in art and science. Of course, the comparison may not hold in all its details, but it is nevertheless true. We need the inspiration, atmosphere and education that the big shows give us."

"In the same comparison, our little local shows are the academies and high schools. In them we may get partially what we get from the larger expositions.

To the smaller shows come the people from a limited area, just as the preparatory schools are patronized most by those who live nearest to them. But when we want a finish to our study we must go further away—provided we don't live near—and must get in touch with the bigger institutions. That place is taken by the big shows.

"The man who never went to school may make a mighty success in life, but every one of you will admit that the man who did go to school has a better chance in the running, all other qualifications being equal. And if the other qualifications are not equal the man who has had advantage may equalize in qualifications in which he naturally lacks.

"It is the same with the shows. We plod along all the year in the rut of our business. We see our own line of cars. We talk our own cars and we get to believe we have the only and best line of cars in the world. That all may be true but it doesn't do us a bit of harm to broaden out a little and learn what is going on about us.

"If we investigate the points of excellence in competing cars we are better able to point out the good things in our own cars. If we get a broad perspective of the whole trade we feel more in command of the situation when called upon to defend our own position in that trade.

In Contact With Experts

"At the big shows we come in contact with men who are experts in every line. We may meet and talk with the men who have designed and built the best cars in the trade. We can hear the stories of those cars from men who have been trained in their selling. And what does a regular university do more than this?

"In a university the faculty is made up of men who are experts in their line. They are men who have studied the things they talk about. Not only do they tell what they know, but they lead students through practical laboratory work that lays the foundation for the work of the individual himself.

"Of course, in school the student often has to be pushed and prodded or he won't progress, but in a university it depends more upon the make-up of the man. He is regarded as more than a boy and it is assumed that if he didn't have some object he wouldn't be there.

"And this furnishes the keynote to the whole show question. The man who

goes should go with an object in view. If the show-goer goes in an aimless way, without knowing why he goes or what he is there for, he loses part of the value of his trip. The show is a big opportunity for study. Not only can the visiting dealer study the products of the whole industry, but he also is in position to scrutinize the merchandizing and display methods that prevail.

"The big shows are supposed to be attended by the best salesmen that the manufacturers have. If such is the case, what is more instructive than to wander into an exhibit and let one of these men talk to you. Perhaps you are afraid he'll find out who you are. In that case isn't it instructive to watch him work and see the means he employs for finding out who you are?

Experience of Practical Value

"Then when you get back home maybe you've got a pointer that will more than pay for all your show trip cost you. And if your inspection of the cars at the show reveals a lack in some one point and if your car covers that point aren't you more confident when you emphasize that point to your prospects? You can do so in the firm conviction that no matter where else he goes he won't find that point of excellence."

"And the new things you see!" exclaimed Ben Doyno.

"Yes the new things!" responded Reilly. "In the cars and accessories you will find all the newest things, the latest developments in the trade."

"And to get back to our university theme: The things you learn in college are not necessarily of practical value to you in later life; the important point is that you are made familiar with all sorts of information, and if some day you want to find something you know where it can be found. You may not know it, but you know where you can get it."

"The man who attends a show in this spirit is a bigger and better dealer. He has climbed out of the rut of routine for a while. He has mingled with the industry as a whole. He has come into touch with the whole world of his business existence—just the same as in a university."

"Will Sam Miles give you a degree?" interrupted Bennett.

"If you can prove you're a regular dealer" said Doyno. "Line forms on the left. Don't push."

The RETAIL NEWS

NORTHWEST

The Embertson & Olson Garage, Litchville, N. D., has been bought by Knut Tvedt, of Svea.

The Hot Springs Motor Co., Hot Springs, S. D., is now in charge of John S. Fuson. The partnership with Elmer R. Juckett was dissolved, Juckett retiring.

W. G. Franklin and George Stevens, Bel-field, N. D., have rented the old opera house and will operate a garage therein.

J. J. Hauck, Elgin, N. D., has sold his garage to Nick Steickler and Frank Messer, of Glen Ullin, N. D.

Anderson Bros., Dagmar, Mont., have sold their garage to Peter Groskurth.

George Peterson and Joe McGann, Albert Lea, Minn., proprietors of the repair department of the Hellie Auto Co., have dissolved partnership, Peterson retiring.

Constant E. Smith and Richard J. Mueller, Springfield, Minn., have formed a partnership to operate the garage of Mueller.

Johnson & Elstad, Farmington, Minn., has taken over the Motor Inn.

The Proctor Auto Co., Proctor, Minn., has been incorporated at \$50,000 by P. T. Clark, J. S. Barrows and R. E. Irish.

Victor St. John, Truman, Minn., has bought the garage and business of Mrs. M. A. Wright.

John Reintjes, Bird Island, Minn., has traded his 80-acre farm for a garage.

Johnson & Johnson, Gibbon, Minn., have opened salesrooms.

William Kerr, Villard, Minn., has sold his interest in the Villard Auto Co.

The Pondera Valley Auto Co., Conrad, Mont., is building a garage.

A. R. Sickler, Forsyth, Mont., will remodel his Main Street Garage.

The Lesmeister Garage, Harvey, N. D., is being enlarged.

Nichols Bros., Sykeston, N. D., are enlarging their garage.

J. E. Anderson, Jamestown, N. D., will erect a fireproof garage on Fifth avenue, one story, 50 x 120.

M. R. Williamson, Belle Fourche, S. D., has opened a repairshop and garage in the J. T. White building on Maple street.

The Kreidler Auto Co., West Duluth, Minn., has bought from the Canadian Northern Railway Co. the municipal building and will convert it into a garage.

Garfield Murphy, Ironton, Minn., is erecting a garage on Fourth street near Ironton avenue, and will sell the Studebaker.

John N. Dondelinger and Paul Guertin, St. Peter, Minn., have dissolved partnership.

M. E. Murray, Baudette, Minn., has removed an old school building to Main street and will use it for a garage.

John Berczyk and William Radke, Brewerville, Minn., have rented the Peter Hermes Garage and have opened a repairshop.

H. E. Martin, Musselshell, Mont., suffered a \$1,000 fire loss in his garage.

H. N. Browning, Belt, Mont., is enlarging his garage.

J. H. Grinn, Sherburn, Minn., is erecting a \$10,000 garage on North Main street, 50 x 130.

P. J. Pint, Sanborn, Minn., has sold his garage to John H. Voss, of Monterey, Minn.

George Wukovich, Gary, Minn., will erect on Commonwealth avenue a brick and concrete block garage, one story, 24 x 60.

Carl Snustad and Bennit Gro, Winger, Minn., have bought a garage in partnership with Arndt Rustvold.

Stearns Bros., Ellendale, Minn., will open a garage.

The North Westcott Co., Minneapolis, is a new company at 1110 Hennepin avenue; it will handle the Westcott.

The Detroit Auto Truck & Trailer Co., 306 Fourth street, S., Minneapolis, is the new representative of the Detroit.

CANADA

The Imperial Garage & Repair Shop, Vancouver, B. C., formerly the Monarch Garage, at 1233 Hornby street, has been opened under the management of W. E. Wells and P. S. Burtwell.

T. Plunbey, Victoria, B. C., has purchased the Thoburn Garage.

Ernest M. Wier, Montreal, plans to open an accessory and supply store March 1 at 596 St. Catherine street, West. Wier has covered eastern Canada in sales work, speaks French and English, and plans to issue a catalog and travel salesmen.

The Canadian Fairbanks Morse Co., Ltd., has been appointed Canadian distributor of the Viking spark plugs, manufactured by the John MacGregor Co., Boston, and the M. & S. gear, made by the M. & S. Gear Co., Detroit.

MIDDLE WEST

The Cadillac Automobile Co., Rockford, Ill., has changed its name to Keyt-Erb Auto Co., with capital stock of \$5,000. Ferd P. Keyt is president and C. H. Erb secretary. There will be no change in the policy of the company and the same cars will be handled.

McClure & Slingoff, Arrowsmith, Ill., dealer in cars and supplies, has moved to 217 East Front street, Bloomington, Ill., and will handle the Velle and Inter-State.

C. B. Wiggins, Champaign, Ill., proprietor of the Cadillac Garage, opened bids this week for a new building, having recently purchased a lot on East Washington street.

C. T. Blech & Son, Springfield, Ill., have let the contract for an undertaker's garage to be erected at 609-611 East Jefferson street. It will be devoted to housing motor hearses and funeral cars. Nine cars will be carried in addition to the hearse.

The Collins Plow Co., Quincy, Ill., has opened a repairshop at 522-26 Vermont street.

The Albaugh Motor Sales Co., Cleveland, has opened a service station at 2013 East 32nd street, in the garage formerly operated by the Fred Van Electric Co. The showrooms of the agency will continue at 1900 East Thirteenth street.

The Beach-Cross Body Co., Detroit, has opened up at 863 Woodward avenue, handling the product of the Highland Body Mfg. Co., Cincinnati. Commercial bodies for Ford cars are a specialty.

W. H. Dews, Chesterfield, Ill., has remodeled a livery barn as a garage. Russell Harmon has been engaged as manager.

M. Leinaw, Peoria, Ill., has opened a repairshop at 332 South Jefferson avenue.

The Lee Tire Sales Co., Columbus, has secured a lease on the first floor and basement at 137 East Gay street and will re-

move to that address from 246 North Fourth street.

Everett Forney and E. T. Knudsen, Peoria, Ill., have opened the Crescent Garage at 232 South Adams street. They will also conduct a Gould battery service station.

The Pioneer Automobile Supply Co., Chicago, has been organized with a capital stock of \$10,000. The incorporators are O. C. Reichert, James Garner and C. W. Garner.

George Bennet and Francis Davies, Columbus, have formed a partnership and taken over the Gay-Fourth Tire Repair Co., at 176 East Gay street.

EAST

P. H. Thomas, Camden, Me., is erecting a new garage on Mechanic street.

The Henshaw Motor Co., Boston and Worcester, has leased another large building at Worcester for a parts and service station for the Dodge Bros. cars. It has added to its staff: F. W. Bailey, formerly of Gray & Davis; G. R. Green, former owner of the Commonwealth Garage, Worcester; J. J. Glennon, mechanical expert of the King Motor Car Co. of New England, and E. W. Jaccobs, an insurance man.

The Princeton Garage, Boston, owned by Jewell Dowling, was destroyed by fire last week with 22 cars destroyed and six badly damaged the estimated loss being \$35,000.

The Puritan Motor Supply Co., Boston, has been cited into court upon a creditors' petition, filed by the United States Tire Co., with a claim of \$560.32.

Walter K. Hutchinson, Arlington, Mass., has been granted a license for a garage on Massachusetts avenue.

H. W. Holbrook and E. F. Cushman, Monson, Mass., have bought the Woodmont Garage, Thorndike street, Holyoke, Mass.

The Chestnut Hill Garage, Newton Centre, Mass., has been incorporated by R. J. McCormick, president; Frank D. Tuttle, treasurer, and F. L. Hooker, secretary.

The Marcy Motor Co., Worcester, Mass., was formed last week to handle the Chevrolet. William Marcy, formerly in the coal business, is head of the company.

McArthur & Blodeau, Hardwick, Vt., are building a new garage on Mill street.

Andrew E. Hathaway and Israel Sher, New Bedford, Mass., are building a garage, 44 x 114, at Acushnet avenue and Middle street.

Peter C. White, Marblehead, Mass., has let the contract for a new brick and concrete garage to replace a wooden building.

Perkins & Corliss, Gloucester, Mass., have secured a permit for a new garage on Main street.

Mark E. Sullivan, New Bedford, Mass., has leased his garage to Robert W. Powers, of Fall River. Powers is a Hudson distributor.

The South Street Garage, Weston, Mass., was sold at a mortgagee's foreclosure sale last week for \$15,093.22 to Franklin Weston. That amount represented the incumbrances.

Alvan T. Fuller, Boston, Packard distributor, has bought 59,230 sq. ft. of land at Shrewsbury and Atchison streets, Worcester, Mass., upon which will be erected a Packard salesroom and service station.

The George B. Wuestefeld Co., New Haven, Conn., dealer in the Pierce-Arrow and Rauch & Lang, has moved into a new garage on York street.

The Chamberlain Auto Co., New Bedford, Mass., has opened a new salesroom at 540 South Main street.

Harold E. Davidson, Portland, Me., has just opened the Broadway Garage at 410 Broadway, with 6,000 ft. of space.

C. W. Honeywell, Plymouth, Pa., lost his garage by fire last Tuesday; loss, \$15,000.

The H. W. Miller Auto Co., Annville, Pa., dealer in the Haynes, Studebaker and Ford, has opened offices with the Front & Market Supply Co., Front and Market streets, Harrisburg, for the distribution of the Haynes car throughout the territory formerly controlled by Roberts & Hoin. C. E. Hoin will act as the Harrisburg representative for the Miller company.

John Groff's garage, Quarryville, Pa., was burned, with a loss of \$12,000. The building was a frame structure, 80 x 40.

A. E. Darling, Portland, Me., has taken the Chandler agency for the entire state. He also has the Reo and Oldsmobile.

The American Motor Equipment Co., Boston, Mass., has moved from 71 North Washington street to 181 Massachusetts avenue.

The Beacon Garage, Shirley street, Winthrop, Mass., was opened last week.

J. B. Kenney, Water street, Newport, Me., has sold his garage to M. Nichols, of Detroit.

M. C. Barrett, Springfield, Mass., has just completed a new salesroom and service station at 600 State street.

PACIFIC COAST

F. D. Keck, Los Angeles, has opened a garage at 1603 South Vermont avenue, under the style Vermont Avenue Garage & Repair Shop.

The Gray Taxi Co., Los Angeles, has opened its own garage and service station in a new brick building at 1243 West Pico street.

H. D. Gorby, Pasadena, manager of the Lake Avenue Garage, has moved from 2931 South Lake avenue to a large new building at East Colorado street and Hill avenue.

Goodell & Brooke, Pasadena, has opened the Chevrolet service station at 2931 South Lake avenue, in the building formerly occupied by the Lake Avenue Garage. The Chevrolet dealers also have opened a showroom in the Maryland Hotel building on Colorado street.

The Pacific Kiesel Kar Branch, San Francisco and Los Angeles, has opened a branch agency at 130 East Union street, Pasadena, with J. H. Montgomery as manager.

Chamver & Holman, South Pasadena, Cal., are erecting a service station at 303 Pasadena avenue.

The Home Oil Co., Redlands, Cal., has just completed a gasoline and oil service station on Citrus avenue. This company has recently secured the agency for Pennsylvania tires.

Robert E. Rohne, Pasadena, has moved into the Mission Garage building at 161 West Colorado street, and is conducting a garage business together with the agency for the Reo. The garage has been completely remodeled.

W. J. Culley, Pasadena, Palge and Allen dealer, has moved into a new garage at Colorado and Delacy streets.

Charles Y. Knight, Pasadena, inventor of the Knight motor, has invested in considerable California real estate and is now erecting a garage at Colorado and El Molino streets for the Kittrelle Motor Car Co., Pasadena, Overland and Willlys-Knight dealer.

D. Prow and R. W. Webber, Los Angeles, Cal., have opened a garage to be known as the Prow & Webber Garage, in the new brick building completed last week by R. C. Roach at 542-44-46 South Figueroa street.

The A. M. Hawley Garage, Pasadena, Cal., has moved into a new large brick building at Colorado and Vernon streets. A part of the salesroom floor is occupied by F. J. Purdy, Mitchell dealer, and the rest of the

100 x 150 building is used by the Hawley company.

J. H. Nicholson, Pasadena, Cal., has opened the Troy Garage at South Fair Oaks avenue and Ritzman street in a large brick building recently completed.

W. H. Redfern, La Habra, Cal., has opened a new garage on Central avenue. The building is being remodeled and enlarged. A stock of accessories is being installed.

Jack Ruddle, Los Angeles, has been appointed manager of the retail Mercer establishment in Los Angeles by George R. Bentel, who now controls the territory west of Denver for the Mercer.

The Federal Rubber Mfg. Co., Milwaukee, Wis., has opened a factory branch in Seattle. A location at 1921 Fifth avenue has been obtained. F. B. Bloom is in charge.

SEATTLE, WASH.—Construction of a two-story building at East Pine street and Bellevue avenue, to be occupied by dealers, repairshops and painters, has begun, and the structure will be ready for occupancy by February 1. It will be the new home of George L. Trotter, Reo and Stewart truck and Stearns-Knight dealer; Robert S. Taylor, machine-shop, and Pike & Lind, body painters. The building is completely electrified, even to the heating system.

SOUTHWEST

The Palge Auto Sales Co., Houston, Tex., will occupy portions of two floors of the new brick building which C. M. Malone will erect at San Jacinto and Walker streets. The service station for the Palge and Saxon, of which the company is the distributor, will be in the same building.

The Newcastle Rubber Co. of Missouri, 3454 Lindel avenue, St. Louis, has been organized to handle the sales of the Newcastle tire in Missouri and southern Illinois, Arkansas, Kansas and Oklahoma.

The Vehicle Top & Supply Co., St. Louis, has been appointed distributor in Missouri and southern Illinois of the Murphy disappearing truck body. The body is especially adapted to Ford roadsters.

A. H. Sullivan & Co., St. Louis, has been appointed distributor of the Form-a-Truck in the St. Louis district. This is an extension attached to the chassis of Ford cars.

E. F. Reavis, Bennerton, Kan., announces the dissolution of the partnership of Fischer & Reavis in their garage business in Prairie Home, Mo. Reavis will continue the trade alone.

Dr. J. E. Pierpont, Skidmore, Mo., has purchased the garage formerly owned by C. E. Owens and will take possession Jan. 1.

The Winterscheidt & Sautter Garage, Horton, Kan., on North Main street, is nearing completion. The building is 60 x 116 and will cost about \$10,000.

The Amble-Inn, King City, Mo., has been bought by C. C. Tanner from Leith & Son.

Carl Naaf, Okets, Kan., has started the erection of a garage, 40 x 60.

W. L. Chasteen, Trenton, Mo., has purchased the Macon Garage from Fred Longwith.

W. O. Cooper and John T. Steele, Sharon Springs, Kan., have rented the Lutz Bros. Garage.

The Herrington Auto Co., Herrington, Kan., lost 14 automobiles, valued at \$10,000, in a fire which destroyed their garage.

J. W. Halliburton, Carthage, Mo., has advertised for bids on a new garage building he will erect.

The Tri-State Motor Co., El Paso, Tex., will move from 321 Texas street into a new building at Leon and West San Antonio streets, where the total floor space is 41,000

ft. The Tri-State company does an annual business of \$1,500,000. It has 32 subagencies for the Ford in New Mexico, southern Arizona and western Texas, and handles accessories.

Burr Bros., Hutchinson, Kan., distributors of the Chevrolet, have opened a new garage on South Walnut street. R. D. Magee will be in charge of the service and repair department.

Burnam & Lantz, Oskaloosa, Kan., who succeed O. T. Johnston in his garage business, have renamed the business "The Garage."

D. O. Leith, King City, Mo., has sold his garage to C. C. Tanner.

Bechtel & Thompson, Elkhart, Kan., are building a new garage. They handle the Ford.

William Meffert, Emporia, Kan., is building a garage at 628 Commercial street; it will be of cement stucco and fireproof.

The Independent Auto Co., Anthony, Kan., is doubling the capacity of its salesroom and garage.

The McCracken Garage Co., McCracken, Kan., has consolidated with the Griffin Garage. The old quarters of the Griffin Garage will be given up.

W. L. Lindhard, Muskogee, Okla., will construct a new two-story salesroom and garage at Broadway and Sixth street. Lindhard is a Studebaker dealer.

The Hockaday Auto Supply Co., Wichita, Kan., has opened a branch house in Arkansas City, Kan. The company also has a branch at Hutchinson, Kan. The Hockaday company plans to connect its three houses by marking roads, signs having been placed already between Hutchinson and Wichita. Work will begin soon on the third leg of the trail.

Veley & Tuttle, Thayer, Kan., are enlarging the property they purchased recently and will open a garage.

The Herington Motor Co., Herington, Kan., is rebuilding its salesrooms and garage in preparation for spring business.

The McFarlan Motor Sales Co., St. Louis, with Charles H. Dolfuss, Jr., as sales manager, has opened a salesroom at 2652 Locust street, where it will handle the McFarlan.

The South Side Auto Supply Co., St. Louis, has purchased the business of the D. C. Gilliland Auto Supply Co., at 3445 South Grand avenue. Gilliland leaves the garage business to undertake the manufacture of a portable tire vulcanizer.

The South Side Garage Co., St. Louis, has been organized by J. F. Carl Wegener. Edwin G. Oldendorph and Hedwig Macher. The company is capitalized at \$5,000.

The Lone Star Motor Co., El Paso, Tex., has established Dodge Bros. subagencies in Alpine, Marfa and Pecos.

The Mehlville Motor Car Co., Mehlville, Mo., has been organized by O. G. Baumgartner and H. H. Wiethop. The company will handle the Overland and Chevrolet and the Republic truck.

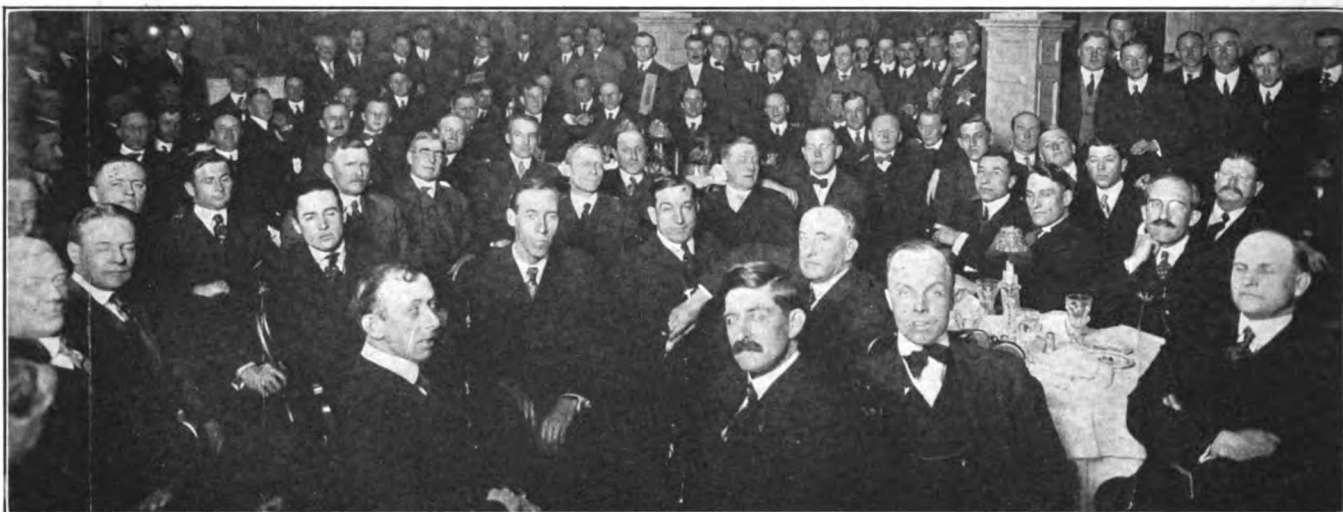
The Taylor Auto Service Co., St. Louis, has been organized with a capital of \$2,000 by Zenia L. Taylor and Earl B. and Thomas E. Taylor.

E. J. Roberts, Frankfort, Kan., has purchased the Westmoreland Auto Co., Westmoreland, Kan., from Huckstadt Bros. & Ballinger.

W. R. Pearce, Gardner, Kan., is about to move his garage into a new building. N. F. Dunn and Frank C. Griffin will conduct the sales department.

John Browning and H. A. Lame, Galt, Mo., have purchased the Reid & Hayes Garage here.

Denver Association Plans to Go After Winter Business



THE AUTOMOBILE TRADES ASSOCIATION OF COLORADO at its December meeting and dinner voted to prepare 60,000 stickers to be sent with the outgoing mail of all members, boosting winter motoring; 108 men were present. Several members disclosed their plans for prevailing upon car owners to have their overhauling done during the winter in case the owner does not keep his car running. E. W. Johnson was made secretary to succeed W. P. Tyler, resigned. B. K. Sweeney succeeded John W. Foster as a director.

ASSOCIATION NEWS

Battle Creek Forms Association

BATTLE CREEK, MICH., Dec. 17—The Battle Creek Garage Owners Association was organized this evening with 16 members. It will affiliate with the Garage Owners Association of Michigan, which is a member of the Associated Garages of America. The officers are: President, Frank Palmer; vice-president, Henry Phillips; secretary, H. E. Petrie, Independent Garage, 99-101 West Main street; treasurer, George Williams. The directors are the officers and Fred Teeter, Louis Boomhower, Robert McKay, L. C. Rivers, Claude Saunders and William Morris. Organizing assistance was rendered by a Detroit delegation, including the state secretary, L. C. Steers, and the Detroit president, F. A. Bean.

New York Garagemen to Reorganize

NEW YORK, Dec. 21—After a year of existence, during which but little progress was made, the United Garage Associations of New York State has voted to disband and will do so officially Jan. 1. It is planned by some of the leaders to reorganize on a different basis. Harry Waring, secretary and organizer, has withdrawn from the movement.

Winnipeg Elects Officers

WINNIPEG, Dec. 21—At the annual meeting of the Winnipeg Motor Trades Association, A. R. Leonard, of the Cadillac Motor Sales Co., was elected president; R. McKenzie, of the McLaughlin

Carriage Co., vice-president; S. A. Doupe, secretary-treasurer.

Executive Committee—G. A. Malcolmson, E. S. Parker, T. G. Breen, F. Lion, J. St. Mars, Michael Ert and A. McCampbell. For the purpose of properly handling trade interests the association was divided into four sections, and the following appointed as chairmen: Dealers section, G. A. Malcolmson; Tires, M. Ert; Accessories, J. St. Mars; Garages, F. Lion.

It is proposed to hold a show during Bonspiel week, Feb. 14-19, if the new Ford assembly plant is far enough ahead on construction to be available for the purpose. As far as can be gathered at the present time, the building will be ready, and the Ford company has promised the use of it to the association.

Chicago Raps "So-called Association"

CHICAGO, Dec. 21—Because of the activities of an association, which recently sprang into being and which claims to be a national association of garagemen, the Chicago Garage Owners Association is sending out this notice:

"WARNING"

"We wish to notify you that our Association is affiliated with the

ASSOCIATED GARAGES OF AMERICA

and is in no way connected or affiliated with any other so-called Garage Owners' Association, and would recommend a thorough investigation by you if called upon by representatives of any other association.

"Chicago Garage Owners' Assn.,
"H. Salvat, Secretary.
H. E. Halbert, President."

Prominent Men of Trade Who Assume New Duties

D. J. Barrill has been made manager of the Chicago office of the Kellogg Mfg. Co., Rochester, N. Y.

L. K. Rittenhouse, manager of the St. Louis branch of the B. F. Goodrich Co., who has been connected with the Diamond and Goodrich rubber companies for the last ten years, has resigned.

J. C. Rader, formerly assistant to J. P. Patterson, manager of the St. Louis branch of the Firestone Tire & Rubber Co., has been appointed general manager of the Auto Tire Sales Co., succeeding Edward F. Bartling, who has resigned.

Morgan Douglas, who has been a salesman at the Detroit branch of the Chevrolet Motor Car Co., has been appointed assistant to L. D. Haas, sales manager of the Chevrolet Motor Co. of Michigan, with headquarters in Flint.

Vincent Link, chief engineer of the former Universal Motor Truck Co., Detroit, has joined the J. C. Wilson Co. as consulting and designing engineer and will design a new 2-ton Wilson truck. This new model will be exhibited for the first time at the Detroit show.

G. E. Porter, designer of the Wilson truck, has resigned.

L. Barnabas, who has been with the International Harvester Co. for many years, has been made Chicago sales manager.

B. W. Burtzell, assistant factory manager of the Packard Motor Car Co., Detroit, will become sales manager of the Whitney Mfg. Co., Hartford, Conn., Jan. 1.

George B. Hendrick, Winthrop, Mass., has been appointed manager of the newly created publicity department of the Fisk Rubber Co., Chicopee Falls, Mass. The new department is distinct from the advertising department, the management of which is unchanged.

L. Gardner Reynolds, Jr., Dayton, O., and Ralph Kaye, New York city, have joined the advertising department of the Stewart-Warner Speedometer Corp.

Factory News of the Week

AJAX TIRE PLANS EXPANSION—REINCORPORATES AT \$5,000,000

TRENTON, N. J., Dec. 21—As part of the business expansion of the Ajax-Grieb Rubber Co., the Ajax Rubber Co. has incorporated at \$5,000,000. It will take over the business of the Ajax-Grieb company. A three-story plant, 200 x 350, is being built; the foundations will permit three more stories as needed.

The company began with a cash capital of \$18,500, to which \$100,000 was added in 1911. The net assets are now \$2,000,000 and represent surplus profits after the payment of dividends. Net earnings for the four years ending August 31 averaged about \$430,000, equivalent to 14 per cent on \$3,000,000, which sum is the amount of the new \$5,000,000 stock that will be issued at present. It will have a \$50 par value and is underwritten at \$65. The net sales for the current year, predicated on earnings for three and a half months and contracts on hand, should approximate \$750,000, or 25 per cent on the stock.

PACKARD TRUCK MEN OPTIMISTIC

DETROIT, Dec. 18—Monday and Tuesday truck sales managers of the branches of the Packard Motor Car Co. met at the Packard plant. They reported 1915 the best year they ever had and the outlook for 1916 better than manufacturers generally anticipate. Beginning this week the first deliveries will be made of the 1-ton and 1½-ton models. Those in attendance were: Hartley Howard, Jr., Pittsburgh; F. A. Jones, Chicago; T. P. Myers, New York; H. S. Norton, Cleveland; G. E. Pagett, St. Louis; S. L. Prime, Boston; W. F. Roth, Philadelphia; C. C. Spencer, Detroit.

CORSET MEN GO INTO PARTS

DETROIT, Dec. 18—Parts and accessories are to be made by the Detroit Auto Products Co., a new concern whose capital stock is \$50,000. Those interested are Joseph, Eugene and Leo Siegel, respectively secretary and general manager, treasurer, and assistant general manager of the American Lady Corset Co., Detroit.

CHAMPION SALESMEN TO MEET

TOLEDO, Dec. 21—The annual convention of the Champion Spark Plug Co.'s salesmen will be held in this city, Dec. 27, 28, 29 and 30.

LOCOMOBILE ADOPTS EISEMANN

BRIDGEPORT, CONN., Dec. 21—The Locomobile Co. of America has adopted the EMR6 dual Eisemann magnet and DC Eisemann coil.

PURITAN BUYS TWO MORE

DETROIT, Dec. 21—The Puritan Machine Co. has purchased the stock of accessories or the United Auto Supply Co., 688 Woodward avenue. Plans are now being formulated for opening a branch accessory store in addition to

the main store in the Puritan plant on Lafayette boulevard. The Puritan company has bought also the service of the Scripps-Booth Cycle Car Co., this purchase making a total of 71 companies.

COMMERCIAL CAR MOVES TO PONTIAC

PONTIAC, Dec. 21—The Detroit Commercial Car Co. has moved its Detroit office to Pontiac at which place the factory is situated, and will conduct all business from now on from this point.

M. P. SEEKS NEW QUARTERS

MT. PLEASANT, MICH., Dec. 21—The Mt. Pleasant Motor Car Co., which was organized here in 1914 and which has been making M. P. fours and eights, is planning to remove to Saginaw, Mich., or some other city where a plant and other manufacturing facilities will be offered. Representatives of Saginaw have asked the company to locate there.

STUDEBAKER BRANCH MANAGERS HOLD CONVENTION

DETROIT, Dec. 18—Branch managers of the Studebaker Corp. met in convention Dec. 14-15, at the Detroit factory. Optimistic reports were given, the branch managers asking for greatly increased allotments. Factory plans to take care of increased production were explained. Additions to buildings and equipment will total close to \$1,000,000. Arrangements have been made to insure adequate deliveries to dealers.

Talks were delivered by A. R. Erskine, president; L. J. Ollier, vice-president in charge of sales; J. C. Heaslet, vice-president in charge of manufacturing; C. C. Hanch, treasurer; R. T. Hodgkins, general sales manager; G. L. Willman and W. T. Bush, assistant general sales managers; H. T. Myers, manager of commercial car department; H. A. Bliggs, of Frank Seaman, Inc., advertising counsel; H. E. Dalton, W. Robbins, F. B. Amos, W. C. Shanafelt, T. E. McMeans, P. L. Ewell and A. H. Remsen.

The branch managers in attendance were: A. C. Webb, Atlanta; G. N. Jordan, Boston; A. H. Pearsall, Chicago; W. S. Williams, Dallas; R. H. Williams, Detroit; R. D. Maxwell, Los Angeles; J. A. Graham, Minneapolis; F. R. Bump, New York city; L. A. Keller, Omaha; Henri Neubauer, Philadelphia; A. H. Brown, Portland, Ore.; C. J. Simons, St. Louis; E. R. Carpenter, San Francisco; L. A. Tilley, South Bend.

District Managers J. O. Hahn, Cleveland, and E. W. Gaus, Indianapolis, and E. W. Spencer, assistant branch manager, Kansas City; J. E. Grady, Canadian sales manager, Walkerville, Ont.

Columbus Holds Annual Meeting

COLUMBUS, Dec. 18—At its annual meeting the Columbus Auto Trades Association elected these directors: A. B. Coates, H. J. Schwartz, J. P. Gordon, George Vogelsang, Charles McCune, Wilbur Winters and H. K. Dobson. The directors will select the officers.

St. Louis To Protest Tax

ST. LOUIS, Dec. 18—Plans for framing a protest against the proposed tax on cars and gasoline are being considered by the Automobile Manufacturers and Dealers Association, the St. Louis Automobile Club and the Motor Accessory Trade Association.

Eastern Capitalists Enter White Company

Capital of Organization to Be Doubled and Name Changed—Will Mean Greatly Enlarged Field for Company

CLEVELAND, Dec. 18—Persistent rumors that the Morgan interests had purchased a substantial interest in the White Co., of this city, one of the pioneers in the automobile business, were set at rest today when it became known that New York interests represented by Chas. D. Barney & Co., and Montgomery, Clothier & Tyler, of that city, have secured a very substantial interest in the White Co. It is not known whether the financial control will pass from the hands of the present White organization or whether the Whites retain 51 per cent in the new organization, to be known as the White Automobile Co. which is being organized under the laws of Ohio, with a capital stock of \$16,000,000.

The new stock has not yet been listed on the stock exchange, but was all subscribed through the financial houses mentioned at \$51 and is now selling on the New York curb at \$53. The stock was all taken up, it is stated in relatively small subscriptions.

Although Eastern financial interests will be represented on the board of directors of the new White Automobile Co., the present organization with Windsor T. White, president; Walter C. White, vice-president and sales manager; E. W. Hulet, vice-president and factory manager; and A. R. Warner, secretary, will be continued.

All of these officials will retain their present large holdings and will conduct the business as heretofore, but their stock holdings will not bear the same relation to the complete stock issue as they have in the past. Present stock owners will hold the same amount of stock in the new organization they had in the old, plus the amount of new stock subscription they have procured.

It has been rumored for some time that there was too much inactive capital in the White organization, due to the founder of the company, Thomas H. White, who created the sewing machine business, and also his brother, Henry White, both of whom died a year ago. These brothers had large holdings which are at present in the hands of trustees and executors which lend practically no assistance to the company.

The present White organization is capitalized at \$8,000,000, made up of \$5,000,000 common and \$3,000,000 preferred. In the new company this has been doubled, the entire additional issue being common.

BRISCOE AND ARGO REORGANIZED BY SWIFTS

JACKSON, MICH., Dec. 17—Final arrangements for the reorganization of the Briscoe Motor Co. and its affiliated concern, the Argo Motor Co., both of this city, were made today. The Swift interests of Chicago are to back the greatly enlarged organization that was originally brought to this city by Benjamin Briscoe and his associates. It means an increase in the capital stock of the Briscoe Motor Co. to \$6,000,000, of which \$4,500,000 is common and the balance preferred.

Coincident with the perfecting of this enlargement, it becomes known that the large and modern plants of the Lewis Spring & Axle Co. here have been bought by the Briscoe combination, as well as some of the equipment in them. These plants have been occupied in the production by the Lewis concern of the Hollier eight, but the purchase does not mean that Lewis will go out of business. On the contrary, the old Flanders plant in Chelsea, Mich., which Lewis bought in August, will be used for the making of the Hollier eight, according to Fred Lewis.

Some time ago this movement of providing greater production facilities was begun by the Briscoe concerns, and, as was reported five weeks ago in Motor World, the Jackson Motor Parts Co. was formed with a capital of \$200,000 to make parts for Argo and Briscoe cars. More recently the machinery and equipment of the now defunct Mason Motor Car Co., Waterloo, Ia., was bought and has been brought to Jackson for installation in the motor parts plant. The plant of the Jackson Metal Products Co. has also been taken over to give added production facilities.

Benjamin Briscoe is still the head of the reorganized company; Frank Briscoe, who only recently became general manager of the old company, appears in the new corporation as vice-president in charge of manufacturing; L. E. Wilson, of Chicago, who recently became associated with the Briscoe concern as general manager, has the title of vice-president in charge of sales and advertising in the new combination.

The result of all these added production facilities is said to be a schedule of 30,000 cars for the first year, of which 5,000 are to be light deliveries, 10,000 the present models, and 15,000 a new four-cylinder design at a low price.

FIRESTONE SUES "FIRESTONE"

CLEVELAND, O., Dec. 21—The Firestone Tire & Rubber Co. in a suit filed in this city alleges the use of "dishonest and discreditable" business methods by Arthur G. Laufman and Harry E. Cohen, who operate the "Firestone Raincoat Co.," 358 Hippodrome building.

The tire company asks that Laufman and Cohen be enjoined from using the name "Firestone" and demands \$25,000 for damage alleged through their use of the trade name since September 15.

It is alleged that it was represented that the raincoat company is "connected with" the tire and rubber company.

OAKLAND MEN IN CONVENTION

PONTIAC, MICH., Dec. 18—A convention of salesmen of the Oakland Motor Car Co. is being held at the plant this week. Between 30 and 40 men are here getting first-hand knowledge about the construction of the car, the service policy and the 1916 sales campaign.

Coming Events

*Indicates sanction by A. A. A.

- Jan. 5-6..... New York City, S. A. E. Winter Session, Standards Committee Meeting.
- Jan. 7, 8, 10, 11. New York, Meeting National Assn. of Automobile Accessory Jobbers.
- Jan. 20-21..... Detroit, Convention of Garage Owners Assn. of Mich., Hotel Statler.
- Jan. 25..... Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
- Jan. 26-27..... Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
- Feb. 21-26..... Countrywide Electric Prosperity Week.
- May 13..... New York City, Sheepshead Bay Speedway race meet.
- May 30..... Indianapolis, Ind., Track race meet.
- June 17..... Chicago, Ill., Speedway race meet.
- June 28..... Des Moines, Ia., Speedway race meet.
- July 4..... Minneapolis, Minn., Speedway race meet.
- July 4..... Sioux City, Ia., Speedway race meet.
- July 15..... Omaha, Neb., Track race meet.
- Aug. 5..... Tacoma, Wash., Track race meet.
- Aug. 18-19..... Chicago, Ill., Elgin road race.
- Sept. 4..... Des Moines, Ia., Track race meet.
- Sept. 15..... Indianapolis, Ind., Speedway race meet.
- Sept. 16..... Providence, R. I., Track race meet.
- Sept. 30..... New York City, Sheepshead Bay Speedway race meet.

THE SHOW CIRCUIT

- Dec. 31-Jan. 8.. New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
- Jan. 1..... Springfield, Mo., Show, Springfield Motor Car Dealers Assn.
- Jan. 3-9..... New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
- Jan. 7-13..... Milwaukee, Show, Milwaukee Automobile Dealers, Inc., Auditorium.
- Jan. 8-15..... Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn., Convention Hall.
- Jan. 8-15..... Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
- Jan. 10-15..... Fort Wayne, Ind., Show, Fort Wayne Auto Trade Assn.
- Jan. 10-15..... New Bedford, Mass., Show, State Armory.
- Jan. 14-22..... Dayton, Dayton Automobile Dealers Assn. Show, Delco building.
- Jan. 15-22..... Detroit, Mich., Show, Detroit Automobile Dealers Assn.
- Jan. 17-19..... Erie, Pa., First Annual Show, Erie Automobile Dealers Assn.
- Jan. 17-22..... Rochester, N. Y., Show, Exposition Park, C. A. Simmons, manager.
- Jan. 17-24..... Wilmington, Del., Second Annual Show, Wilmington Automobile Trade Assn., Hotel Du Pont, J. H. Nixon, chairman.
- Jan. 18-22..... Baltimore, Md., Show, Baltimore Automobile Dealers Assn., Fifth Regiment Armory.
- Jan. 18-29..... Fargo, N. D., Third Annual Gate City Auto Show, J. I. Case Building.

- Jan. 22-29..... Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.
- Jan. 22-29..... Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 22-29..... Montreal, Can., Show, Montreal Automobile Trade Assn., Army's Building.
- Jan. 23-30..... Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.
- Jan. 24-29..... Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
- Jan. 24-29..... Scranton, Pa., Sixth Annual Show, Pleasure Cars, Town Hall, Hugh B. Andrews, manager.
- Jan. 25-29..... Lancaster, Pa., Show, Conestoga Park Pavilion.
- Jan. 29-Feb. 5.. Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
- Jan. 29-Feb. 5.. Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
- Jan. 31-Feb. 1-2. Scranton, Pa., Commercial Car Show, Town Hall, Hugh B. Andrews, manager.
- Jan. 31-Feb. 5.. Fall River, Mass.; Show, Raymond C. Borden, Mgr.; State Armory.
- Feb. 7-12..... Kansas City, Mo., Show, Kansas City Motor Car Dealers Assn., Convention Hall.
- Feb. 9-12..... Peoria, Ill., Show, Peoria Automobile & Accessory Assn., Coliseum.
- Feb. 12-19..... Hartford, Conn., Show, Hartford Automobile Dealers Assn., State Armory.
- Feb. 14-19..... Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
- Feb. 19-26..... Newark, N. J., Show, First Regiment Armory, C. L. Fitzgerald, manager.
- Feb. 20-27..... Grand Rapids, Mich., Seventh Annual Show, Grand Rapids Auto & Accessory Dealers Assn., Klingman Bldg.
- Feb. 21-26..... Portland, Me., Show, Exposition building.
- Feb. 21-26..... Bridgeport, Conn., Third Annual Show, State Armory, B. B. Steiber, manager.
- Feb. 21-26..... Louisville, Ky., Show, Louisville Automobile Dealers Assn., Kentucky First Regiment Armory.

Motor Car Securities Quotations

	Dec. 18, 1914	Dec. 18, 1915
	Bid	Asked
Alax-Grieb Rubber Co., com.	250	250
Alax-Grieb Rubber Co., pfd.	100	100
Aluminum Castings, pfd.	90	100
Chalmers Motor Co., com.	90	100
Chalmers Motor Co., pfd.	87 1/2	92 1/2
Chevrolet Motor Co., com.	130	137
General Motors Co., com.	70	83
General Motors Co., pfd.	90 1/2	95
B. F. Goodrich Co., com.	24 1/2	25
B. F. Goodrich Co., pfd.	82 1/2	96
Goodyear Tire & Rubber Co., com.	183	191
Goodyear Tire & Rubber Co., pfd.	100	102
International Motor Co., com.	30	33
International Motor Co., pfd.	50	50
Kelly-Springfield T. Co., com. (old)	65	68
Kelly-Springfield T. Co., com. (new)	70	72
Kelly-Springfield T. Co., 1st pfd.	70	80
Kelly-Springfield T. Co., 2nd pfd.	95	97
Maxwell Motor Co., com.	14 1/2	15
Maxwell Motor Co., 1st pfd.	43 1/2	45
Maxwell Motor Co., 2nd pfd.	17	19
Miller Rubber Co., com.	225	243
Miller Rubber Co., pfd.	110	111
Packard Motor Car Co., com.	100	107
Packard Motor Car Co., pfd.	90	100
Pease-Detroit Motor Co., com.	100	102
Peerless Motor & Truck Corp.	38 1/2	39 1/2
Portage Rubber Co., com.	25	30
Portage Rubber Co., pfd.	80	85
Regal Motor Co., pfd.	18	20
*Reo Motor Truck Co.	10 1/2	11 1/2
*Reo Motor Car Co.	23 1/2	24 1/2
Stewart-Warner Speed Corp., com.	53	53
Stewart-Warner Speed Corp., pfd.	98 1/2	101
Studebaker Corp., com.	32 1/2	33
Studebaker Corp., pfd.	86 1/2	88
Swinehart Tire & Rubber Co.	69	71
U. S. Rubber Co., com.	52 1/2	53 1/2
U. S. Rubber Co., 1st pfd.	101 1/2	102 1/2
White Automobile Co. (new)	83	85
Willis-Overland Co., com.	80	85
Willis-Overland Co., pfd.	80	85

*Par value \$10; all others par value \$100.

MOTOR WORLD

for
JOBBERs, DEALERS AND GARAGEMEN

Volume XLV
No. 13

New York, December 29, 1915

Ten cents a copy
Two dollars a year

J. H. Faw, Inc.

Manufacturers Distributors

at the New York Automobile Show

Fourth Floor—West End of Building

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WALDEN MANUFACTURING CO.

Walden-Worcester-Wrenches

American Standard Ignition Cables

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on Complete List of

DANN INSERT

"The Inter-leaf Shock Absorber"

Constant increasing demand coupled with quadruple production and new labor-saving methods and appliances has made possible price reductions on DANN Insert.

These reductions are of such magnitude that DANN Insert is now within reach of every user of a motor vehicle, and, besides DANN Insert is better than ever. New refinements and improvements have been accomplished.

DANN Insert has revolutionized the method of absorbing road shocks. It has educated the Motor Car user in the matters of car comfort and car efficiency, and has shown the way to the real true "bred in the bone" method of going to the seat of the trouble and eradicating it for all time.

When you have DANN Insert in the springs of your car, you have the utmost spring efficiency that is possible with the car's construction. DANN Insert is the only Inter-leaf Shock Absorber. It ab-

sorbs shock and vibration from every square inch of the spring's bearing surface.

It adds tremendously to the riding quality of any car, and prevents undue wear and depreciation of the costly mechanism. It keeps the springs as they should be, free from squeaks and always able to respond instantly to the slightest road impact.

The New 1916 Winton is standardly equipped with DANN Insert—striking evidence of its merit, when it is considered that the Winton has used DANN Insert in their last three series of cars.

There is no longer any excuse for a car owner not to have DANN Insert. It's now within the reach of all.

OWNERS, DEALERS, JOBBERS write for new price list just off the press including 1916 cars.

At the New Low Prices DANN Insert will be greater than ever before.

See Us at the New York Show, Grand Central Palace, Fourth Floor, Space D-132. Something Entirely NEW. Absolutely the Biggest Accessory Sensation of the Year. DON'T MISS IT!

DANN SPRING INSERT COMPANY
2265 INDIANA AVENUE CHICAGO, ILLINOIS

(COUPON)

Dann Spring Insert Co.,
2265 Indiana Avenue, Chicago.

Kindly send me new list of reduced prices on DANN Insert.

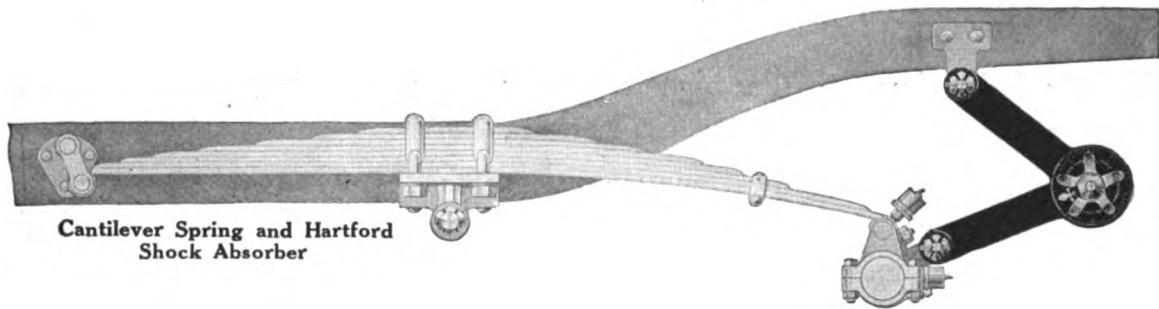
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RIDING COMFORT WITH CANTILEVER SPRINGS

When roads grow rough, the activity of the cantilever type of spring requires the effective control of the

★ *Hartford* SHOCK ABSORBER



Cantilever Spring and Hartford Shock Absorber

to insure riding comfort. Dissipation of the surplus energy, by frictional absorption, perfects the function of this type of spring in particular, noticeably improving the traction of the car, absorbing all the small but disagreeable vibrations, and promoting practically perfect results in the riding qualities of the car.

Attachment is simple. The above illustration shows the relative positions of the spring and shock absorber and suggests the harmonious operation of both.

If your car has cantilever springs or other active springs, it needs the Hartford Shock Absorber in order to carry its load with comfort over every road.

HARTFORD SUSPENSION CO. E. V. HARTFORD, President 142 Morgan St., Jersey City, N. J.

Makers of the Hartford Cushion Spring, Hartford Electric Brake, Hartford Auto Jack, Hartford Bumper.

BRANCHES: Boston, 319-325 Columbus Avenue; Chicago, 2037 Michigan Avenue; New York, 1846 Broadway and 212-214 West 88th Street; Indianapolis, 425 North Capitol Boulevard.

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* Formerly Truffault-Hartford.



People Like **FISK** **TIRES**

The business of the Fisk Company in 1915 was far greater than in any previous year. New buildings are being rushed to completion that will enable the company to make

Twice As Many Fisk Tires Next Year

Honestly built tires—of the highest quality—low in price; those are some of the reasons for the tremendous increase.

Dealers like the company because it treats them squarely. It co-operates in the sales work and backs the dealer with nation-wide advertising and nation-wide tire-help branches.

Aren't you interested in becoming a Fisk Dealer?

We want to impress everybody with the fact that the Fisk system of giving tire-help at Direct Branches is unapproached. Fisk branches are in all important business centers.



They lay a foundation for the dealer by making every user satisfied with his tires and by giving advice and instruction, which means saving as well as satisfaction.

Get in touch with us now. Write
Dept. 23 for our Dealer Proposition.

THE FISK RUBBER COMPANY

Factory and Home Office

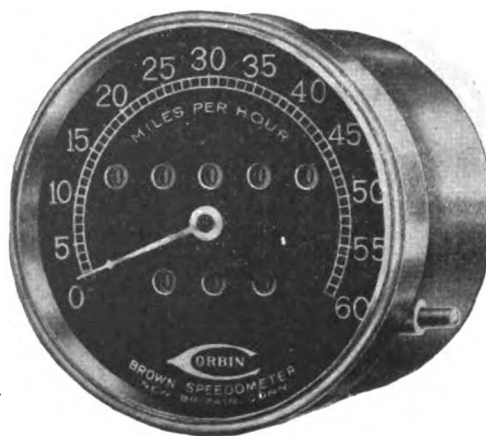
Chicopee Falls, Mass.

Fisk Branches in All Principal Cities

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THE 1916 SPEEDOMETER



EQUIP your car this season with a speedometer that is something more than a name. Equip your car with a speedometer that has been tried and found accurate on all occasions—a speedometer which in every detail of construction is as perfect as engineering experience and mechanical ingenuity can make it—a speedometer that possesses every feature that makes for accuracy, durability and convenience. Equip for 1916 with a

CORBIN-BROWN SPEEDOMETER

"The Speedometer of Absolute Accuracy"

Endorsed by automobilists and motorcyclists of note the country over. Investigate the Corbin-Brown today.

Centrifugal in principle, simple in design, durable in construction, a special attaching bracket, adjustable to four positions, extra strong parts, especially constructed friction-free flexible shafting.

Sold and equipped by all good dealers. Service stations everywhere. Write today for new catalog.

THE CORBIN SCREW CORPORATION

AMERICAN HARDWARE CORPORATION, Successors
NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia

Will exhibit a full line of Corbin-Brown Speedometers, Coaster Brakes, etc., at Space D-109A, Grand Central Palace Automobile Show.

*"Made in U. S. A."**Overland*

What We Give For \$615

The small, comfortable Overland 75—fully equipped and perfectly appointed is a revelation to prospective buyers of low priced cars.

Amply powered, but inexpensive to operate, it meets every possible demand of those who desire a light, economical car.

Yet it has the beautiful stream lines—the finish—the convenience for which Overlands always have been known.

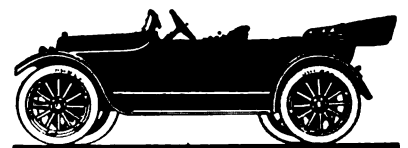
It is a car anyone can be proud of in every way.

You, as a dealer, know motor car values.

Compare this car with any other offered at so low a price.

You will find the Overland's excess value nothing less than astounding.

The Willys-Overland Co.
Toledo Ohio



Overland Model 75 Touring Car
Price \$615, f. o. b. Toledo

MOTOR WORLD

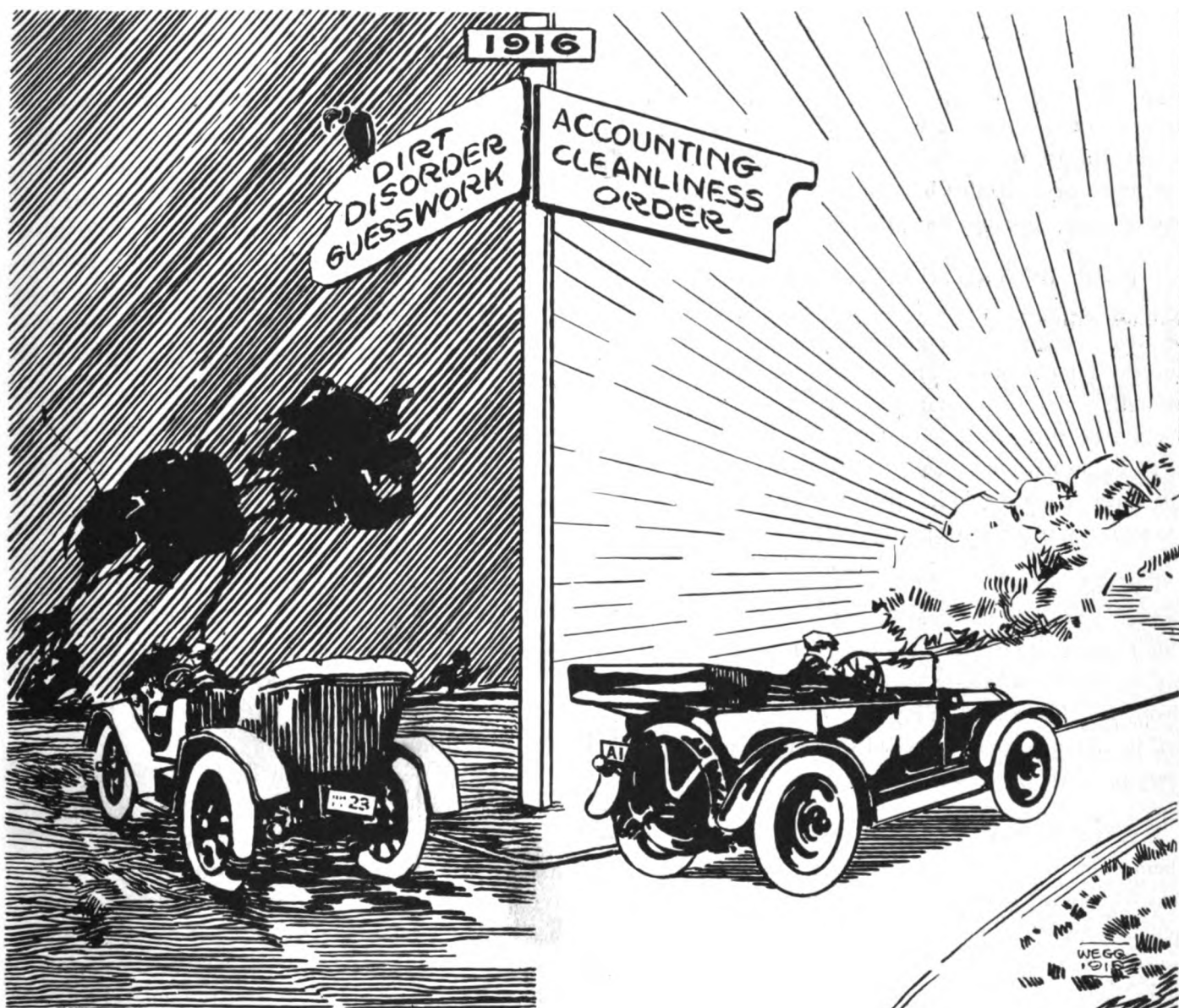
JOBBERs, DEALERs AND GARAGEMEN

Vol. XLV

New York, U. S. A., Wednesday, December 29, 1915

No. 13

Which Way?



Which road will YOU take during the 366 days in 1916?

MERCHANDISING 1916 — MY CREED

I BELIEVE IN MYSELF. I am the potential equal of every other human being. I believe I am a BUSINESS MAN. When I tell the story of my goods I believe the time I am spending is just as valuable as the time of the man to whom I am speaking. I will approach him without fear; I will tread firmly at every step; I believe I have a mission in the business world.

I AM A SUPPLIER OF NEEDS. I am in position to benefit the world. The goods I sell are desired by it; it only remains to make the world acquainted with the goods. Once my goods are known to the world the world will want them; the world will use them; the world will be glad I have told my story. In this belief I go to every man as one who may become his best friend.

I WILL BE TRUTH—ALWAYS. In all my dealings with my fellow men I will not by word, act or otherwise give a wrong impression. To build for success I must obtain and hold the confidence of my fellow men. To obtain and hold that confidence I must be truth itself. I will so work that there shall be no flaw in myself. They shall say: "It is the truth. He has said it." This shall be the cornerstone of my success-structure.

I WILL BE EVER LOYAL to my line and my house. I am paid not to sell but to "represent," and this I cannot do unless I am loyal. I cheat myself, my employer and those with whom I deal if I am disloyal. If I cannot be loyal to my line I will not sell it. Among those who sell there is no place for traitors. I scorn to be such. I am a man.

I WILL KNOW MY GOODS—always—all of them. I cannot fulfill my mission if I do not. Unless I know my goods I am not able to win for myself the highest rewards of salesmanship; I cheat myself. Unless I can tell my story with full knowledge I am not a proper representative of my line; I cheat my employer. Unless I can tell the world all the benefits my goods can give I cheat the world.

I WILL NOT SPEAK disparagingly of my competitor or his goods. I owe it to myself not to do this. Each disparaging remark serves only to create curiosity as to my competitor and his goods and this affects me and my goods adversely. Each disparaging remark serves to lower my moral caliber; it makes my progression downward instead of upward. It is evidence that I am not an able salesman; it is evidence that I cannot hold my own and must stoop to underhanded means in my fight for business.

I AM A BUILDER OF THE INDUSTRY of which I am a part. Each word and act of mine are factors in the progress of this industry—and of the world itself. I will be a credit to that industry. I choose to be known as one who adds something of value and merit to the whole. I will boost the industry. In so doing I elevate myself.

I AM A CREATOR OF OPPORTUNITY. I do not wait for it to come, because it seldom comes uninvited. It is more often created by the man—for himself. I want it—for myself. Wherefore. I create it—for myself.

I VALUE MY TIME. And I will not be deceived as to what becomes of my time. I will take accurate account of my activities to the end that each minute may be profitably utilized. My speed toward success depends upon the time I spend in traveling.

I HAVE CONFIDENCE IN MYSELF. I KNOW I can DO. The world's greatest successes are but a combination of details, of steps, of movements. And since I can accomplish any one of these success-building details I can build success. I will be a better builder TODAY than I was yesterday; each day I will add to the structure. Each day I will review my work of yesterday, and each day I will plan to surpass yesterday. I CAN build success—I WILL.

1916



MY



1916

BUSINESS CREED

I WILL BE A BUSINESS MAN. I will so operate my business that I may be able to prove that I AM a business man.

MYSELF AND ALL those who work with and for me shall at all times be most courteous to customers. Uncivil language is not a part of real business. Those who would give us opportunity for increasing our profits shall be given the utmost consideration. The "voice over OUR telephone" shall not be one that offends. We will always bear in mind that our mission is to serve, not to be served. From serving comes our business growth, and the rapidity of this growth is determined by the quality of our service.

SERVICE is not the giving away of profits. Service is efficient serving. It is that by which I secure and hold the good-will of the customer. I will not give my profits to my customers; I will have courage to expound my principles of business and will stand upon them.

I WILL NOT FEAR my customers. I will secure a legitimate profit—and no more. I will stand upon my own two feet and take what is mine by right. If I cannot make a profit I will not make the deal.

I WILL EMPLOY PROPER METHODS in my business at all times. I will always know the

condition of my business, and of each department of my business. I will make my business methods tell me a true story of my business; I will know my losses and my gains and will endeavor to check my losses and increase my gains. I will maintain a system that is adequate to my needs.

I WILL PLAN for new business, for the invasion of fields from which I have not secured business heretofore. I will aim at the acquisition of new customers and the sale of goods for which there is a demand or for which I can create a demand but which have not brought me revenue heretofore.

I WILL AIM to derive Greater Profits from the sale of accessories and supplies. I will stock and display these goods. I will study this phase of my business. I will make my display such that it will attract the owners of cars. I will seek their patronage.

I WILL BE CLEAN. I believe filth is a disgrace. The daily grime of toil and the accumulated filth of neglect are not the same. I will remove all filth from my place of business. I will keep my corners clean. I will keep clean the clothes of myself and my co-workers. I will scrub the floor of my salesroom, office, garage and shop regularly. I will keep my windows clean. I will not permit the disorderly arrangement of

anything in my place of business. I will never be content to be "average." **I WILL EXCEL.**

I WILL TRY to enlist the co-operation of my co-workers in the upbuilding of the ideal toward which I strive. If I must succeed they must help me. Without their full cooperation I am handicapped.

I WILL MAKE my place of business my best advertisement. It is always my greatest advertisement, and I will make it an advertisement for good. When the stranger enters his eye shall be met by that which is pleasing. His desires shall be met with promptness and completeness. He shall be made—and kept—satisfied.

I WILL MAKE the reputation of my work an asset. The botch job shall have no part in my plan. People shall bring work to me because they know I will do it well. They shall know this because they shall know that I HAVE DONE well.

I WILL BUILD my business for posterity. I will so build that the community may benefit from the part I have played. I will so build that those dependent upon me may receive from my business that to which they have a right in life—even after I have gone. It is my desire that the world shall be better for my having lived.

WIDE-AWAKE MERCHANDISING

SALES NOT MADE BY DOG-EAT-DOG

Knocking Methods Hurt All and Do Not Help One—Bar them for the New Year

"I'll tell you the one thing I'm prouder of than anything else," said a big western distributor to the Motor World representative. "I've never knocked a competitor's car. It hurts my own business too much and the whole trade as well."

"Did you ever figure it out this way? I'm a man who wants to buy a car, don't know much about automobiles, but wife and myself have decided we can afford to spend a thousand or so for the comfort and luxury of a motor. Most of my retail customers are situated just like that."

"Well, I go to see Smith's car. Smith tells me it's a dandy but adds that Brown's car eats its owners into the poorhouse using up tires and gasoline. Then I drop in Jones' place and the hammers are out for Smith and Brown. Pretty soon I've been around the row and heard some dealer knock every other car on the market."

"Wife and I talk it over again. We've developed a feeling that maybe we aren't prosperous enough to buy all the tires and gasoline and pay all the repair bills that Smith and Brown and Jones and the others have told us about. Wife, you know, handles the purse, and she's not anxious for me to go broke again. We went through that once and I got a lot of gray hairs. No more."

"'We'll wait another year,' says wife. 'Then we'll be better able to afford it, maybe.'"

"There you have it in a nutshell. Nobody gets a sale. Wife and I haven't got a car to drive around in and tell all our friends that the greatest thing in the world is an automobile. Instead of being boosters and maybe persuading our next-door neighbor that they ought to buy, we're going around with a long face and discussing bankruptcy and sheriff's sales with anybody who mentions a motor car."

He stopped a moment to answer the

telephone. When he turned back to the conversation, the Motor World representative began:

"If everybody had taken hold and pulled together——"

"Somebody would have made a sale," supplied the distributor. "Nobody made it. Now this is the point: If the dealers stand together boosting instead of knocking, the whole industry will gain. That means in the long run each dealer will gain. How can it work out any other way?"

"An association?"

"That's one way," was the answer, "and perhaps the best. I believe in associations; they're the right things. But first we've got to quit knocking each other. There's a certain amount of psychology wrapped up in every deal. The minute a customer hears a salesman begin to knock, immediately that customer has a wonder planted in his brain. Can I believe him? Isn't the same thing true of his own car? The customer's confidence is shaken and, usually, the sale falls through."

"It's largely a matter of faith—faith in your own car, faith in the business as a whole, and faith that for every car sold, no matter who sells it, your game of selling motor cars is boosted just so much."

HOLD SALES MEETINGS IN 1916

Greater results in selling are a worthy aim for 1916. Nearly every worker in any field is capable of greater results each year. Salesmen are not unwilling to do more if they are aided in the doing, for with greater results comes greater remuneration.

One of the best watch-your-step plans is the sales meeting. It can be made a clearing house for good ideas and a creator of energy and initiative. Once a week—perhaps every morning—let the organization assemble as one family. Bring up the problems that have arisen; if a man missed out on a sale let him tell the story of why he missed out. Let the other fellows criticize; make it an open meeting.

This will not come easy at first, but as each man becomes imbued with the spirit of the sessions there will be no resentment over criticisms and the good that will come will be nothing short of surprising.

CAR OWNER TELLS WHAT SERVICE IS

He Was Not Given Free Parts But He Has Ever Since Been a Booster

Here is a story of real service and its result told by George M. Dimond, a former selectman of Bedford, Mass., who is now a newspaper man and resides in Boston:

A few weeks ago he bought a Jeffery car. As he was not a very confident driver he used to leave the car at Arlington on his way to Boston and use the trolley cars from there to the city. Returning home he used the street cars and drove home from Arlington in his car.

One day he had to leave the car in Boston at the Jeffery service department for a minor repair. It was promised to him at 6:30 Saturday evening and was to be turned over at Arlington. At 6 o'clock Saturday evening he was called on the telephone at his home by Manager Brennan of the service department, who told him that the driver assigned to deliver the car had not yet reached the service station, so the delivery would be delayed. Mr. Dimond said it did not matter, that he could just as well wait until Monday.

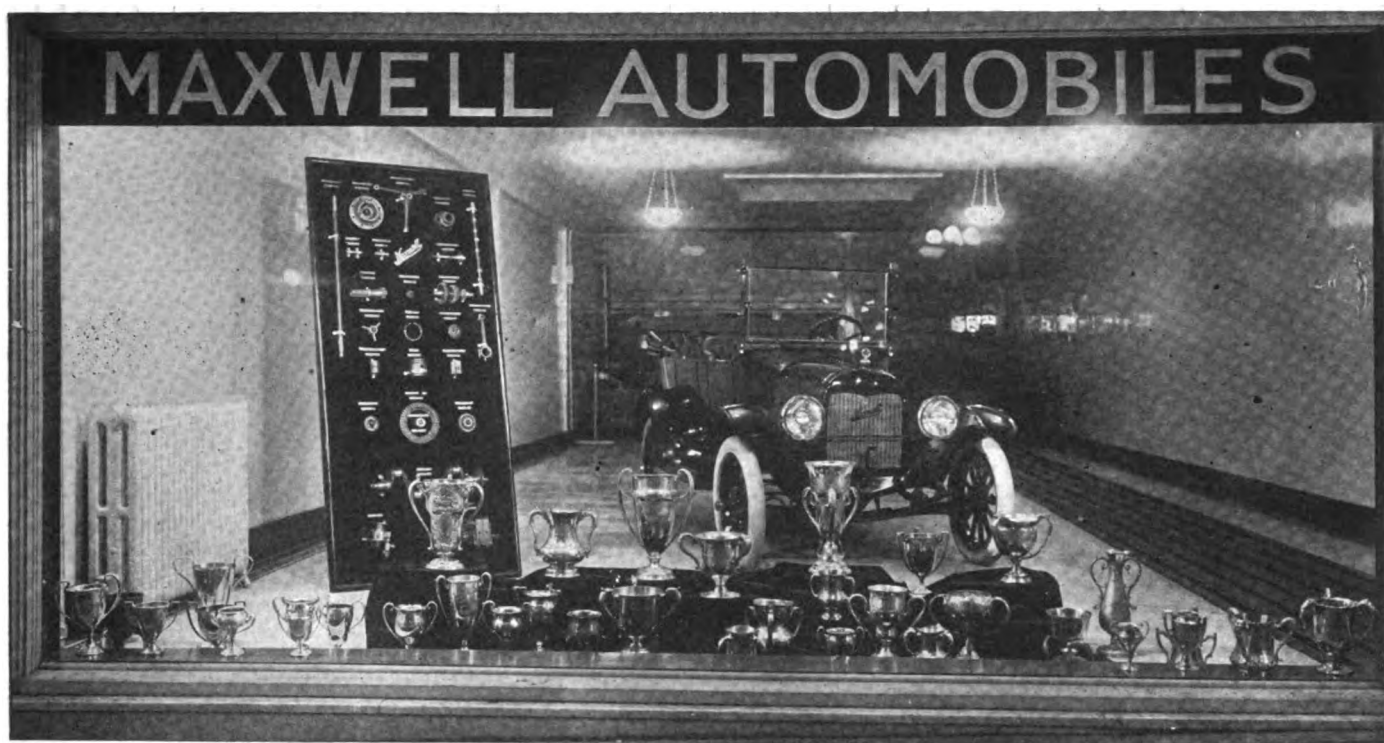
"The Jeffery policy is to do just as we plan," said Brennan. "You will get your car this evening."

Dimond said he did not want to bother the service department, as Bedford was some 12 miles out in the country, and it was too much to send a man all the way out and then have him railroad it back. But Brennan said not to think of that. The result was that rather than keep Dimond waiting Manager Brennan drove the car out there himself. This so pleased Dimond that during the following week he brought two prospective customers up to the Jeffery salesrooms.

"If they take care of customers that way, I know many of my friends will be thankful to me for my advice," said Dimond.

This was not cutting prices or giving away parts. It was real service.

Make Interior of Salesroom White! It Helps Display



As one of the plans for the New Year include a white interior for the salesroom. It has been tried this year by a number of dealers, and all vote it a success. The ordinary salesroom, with its dark walls, is a poor setting for automobiles. The cars do not stand out, and there is present that glaring reflection which blinds the eye to what is behind the window. This picture shows the salesroom of the Actor-Parke Auto Co., Kansas City, after the interior had been made white. The front is narrow, but at night is one of the most conspicuous along the row

POINT SYSTEM IS EFFICIENCY PLAN

*Each Man Rates Himself by
His Actions—It Tells the
Boss Who Excels*

A Point System. Ever try one? It is of more value to your business than you believe—until you have tried it. It is not necessarily a whip over your employes. They needn't know about it. Its greatest value is to you.

Under the point system every member of the organization is scored on points for his performance. He gets so many points for his work, whatever he may do; he gets so many points for his personal appearance, so many points for being on time in the morning, so many points for not beating the clock at night, so many points for this and so many points for that. The total comes very near being an indisputable record of the man.

If a man's point record falls low it can be investigated. The reason why is easily traced. With this data the man can, in a confidential manner, be told of his short-coming.

Winter Business?

Are you getting any winter business?
Are you aggressively going after car

owners in an endeavor to keep your repairshop running, your garage busy and your accessory stock moving? If not, why not?

If you do this it will mean profits to you during the period when so many shops are idle or operating at a loss—if they are not closed entirely. Write letters to your customers, and to those who never have traded with you. Spend a little money for newspaper advertising. Get out some booklets, some mailing inserts. Make personal calls on some of those people who are prospective profit-producers for you.

All this will require mostly leg-work on your part, but the return will be of a big percentage.

DID YOU SEND GREETINGS?

Have you sent out any New Year's greetings? Any message of Christmas cheer to your customers? It pays. It isn't too late. If nothing more, get some better-than-usual New Year's cards and mail out a bundle of them.

At this time of year the customer is pleased to know that you have thoughts other than those of business. He himself has turned from business to think in the holiday spirit, and while he would resent the intrusion of business he is glad to receive your greetings. He thinks better of you for it. And while all words of business are omitted business is benefited.

EMPLOYS WOMAN TO DRIVE TRUCK

*Philadelphia Dealer Demonstrates Ease with Which
Vehicle Is Handled*

We think nothing of it when a lady demonstrator for a certain kind of vacuum cleaner or a new type of cleaning compound comes to our door. But if the lady demonstrator for a motor truck called upon us, we probably would be quite surprised. Immediately our interest would be aroused.

The Philadelphia dealer in the Commerce motor truck has taken advantage of this, and has acted upon the idea that if a girl can drive its trucks skilfully enough to be entrusted to demonstrate them, it is at once proven that the control is simple enough to be quickly mastered by the delivery boys employed by any business house.

The Philadelphia-Commerce Sales & Service Co., 2229 Brandywine street, Philadelphia, has in its employ a Miss Wright, who is not only called upon to make regular demonstrations, but it is part of her duties to teach the operation of the Commerce delivery car.

Miss Wright is convincing merchants that a truck is handled with ease.

The Motor World Simplified System of Accounting

For Dealers and Garagemen—All in One Book, Under One Cover

(Copyrighted by the Motor World Publishing Co.)

Instalment No. 6 (Car Sales)

THE first instalments of these System articles covered the operation of the Income and Expense forms but did not include the Sale of Cars. This instalment takes up the Sale of Cars. This matter is handled separately because some men sell cars only and do not run a garage; also it is different from other parts of the business in several respects.

It was our intention to leave the Sale of Cars until after the Statements of Profit and Loss and of Assets and Liabilities and the Financial Statement had been compiled from Forms 1 and 2. But since that is an end-of-the-month transaction and since many wish to know the Sale of Cars in order to start January 1, we shall take this up now.

We shall first take up the selling of

cars, the Income side of the business. Since there are several different conditions under which sales are made, we shall first take up those conditions.

A Cash Sale (Entry A)

It is assumed that these cars sell for \$1,500 list and that the freight on each is \$10; the dealer has to pay the freight, so he adds it to the price of each car when he sells it.

William Casey pays cash for a car. You ask: What part of our business received the benefit? The answer, of course, is Cash, so we debit Cash with \$1,510. We assume that on these cars our discount is 20 per cent and that they cost us \$1,200 each. Our profit on each

car is \$300—PROVIDING WE GET THE LIST.

We have now to make our Credit entry and we ask: What part of the business gave us this benefit? It came from the sale of a car, so the Car Sales Department gave the benefit. We Credit Car Sales, under Income accounts, with \$1,510. In the Explanation column we write, "Blank car, 17,834." This means that this was the factory number of the car we sold. It is well in each case to record the number because this is an important detail in each sale.

Sale by Note (Entries B and C)

George Barrett wants to buy a car but cannot pay for it all now. He gives us

Entries for the First Part of This System Instalment

Supplement to MOTOR

CASH RECEIPTS AND SALES RECORD							MOTOR WORLD SIMPLIFIED SYSTEM Copyrighted	
ALL OTHER ACCOUNTS			CUSTOMERS ACCOUNTS		ALL CASH REC'D	FROM WHOM RECEIVED		
AM'T.	AM'T.	EXPLANATION	CHARGE AM'T.	NAME				
					1510 00	Wm. Casey	A	
510 00		Notes Receivable			1000 00	George Barrett	B	
					510 00	George Barrett (Mtr)	C	
			310 00	Edward Smith	1200 00	Edward Smith	D	
					310 00	Edward Smith	E	
	510 00	Car Stock Wms. (Overland)			1000 00	John Williams	F	
					410 00	Laxicab Co.	G	
	755 00	Car Stock (Brown Reo)					H	
	68 00	Car Sales Exp. (Rebuilding Brown Reo)					I	
					755 00	Geo Lane	J	
	755 00	Brown Reo Allowance			755 00	John Brown	K	
					1570 00	Jose Rose	L	
510 00 2088 00					310 00			
					8960 00			
					DEBITS			
					ALL CASH RECEIVED 8,960.00			
					CUSTOMERS' ACCTS CHARGED 310.00			
					ALL OTHER ACCT'S.			
					NOTES RECEIVABLE 510.00			
					CAR STOCK 1,265.00			
					CAR SALES EXPENSE 68.00			
					BROWNS ALLOWANCE 755.00			
					2,598.00			
					11,868.00			

his check for \$1,000 and we take his two months' note for \$510. What part of our business received this benefit? Cash was benefited to the extent of \$1,000, so we Debit Cash with \$1,000. Our Notes Receivable account is increased by \$510, so under All Other Accounts we Debit Notes Receivable with \$510.

We ask: What part of our business gave this benefit? It, of course, was the Car Sales Department, so we Credit Car Sales with \$1,510 and in the Explanation column write, "Blank car, 17835." Even though this note is not due for several months the Car Sales Department should be credited with the full income now. If the note is not paid it is the manager's fault and would be a BAD DEBT EXPENSE of the General Department.

Even though the note is not due for a couple of months we shall pay it now in order to show how this is done. The entry is similar to Entry J, Form 1, Instalment No. 3.

Barrett comes into the office and gives us the \$510. We ask: What part of our business received the benefit? Since we have received Cash the benefit is to Cash, so we Debit Cash with \$510 (Entry C). What part of our business gave this benefit? It came, of course, from our Notes Receivable account, so we Credit Notes Receivable with \$510 and make the Explanations as shown on the form.

Charging Part of a Sale

(Entry D)

Edward Smith wants to buy a car and doesn't want to pay for it all now. He doesn't want to give us a note because he says he will be able to pay in a few days when he receives some money that is due him. He gives us a check for \$1,200 and we charge the \$310 as a regular charge account. What part of our business received this benefit? Cash was increased by \$1,200, so we Debit Cash with \$1,200. Our Customers' Accounts are larger by the \$310 we have charged Smith, so we Debit Customers' Accounts with \$310.

We must now make our Credit entry. What part of our business gave this benefit? It came, of course, from the Car Sales Department, so, under Income Accounts, we Credit Car Sales with \$1,510, and in the Explanation column put down the number of the car.

Paying the Charge

(Entry E)

In a few days Smith comes along with the \$310 that he owes us. What part of our business received this benefit? It is, of course, Cash, so we Debit Cash with \$310. The benefit was given by our Customers' Accounts, so we Credit Customers' Accounts at the extreme right with \$310.

Making a Trade

(Entry F)

John Williams wants to trade in an Overland car. We estimate that we can allow him \$510 on it, so he pays us \$1,000 and turns in the car. We hope to get \$510 out of it—\$500 plus the freight. What part of our business received the benefit? Cash, of course, received the \$1,000, so we Debit Cash with \$1,000. Now, what we do with the used car? We roll it into our garage and it becomes a part of our Car Stock. We can run New Car Stocks and Used Car Stocks or can put it all into one stock. For the purpose of simplification let us put it all in one stock and call it Car Stocks.

This Car Stock has been increased by one, so that is the part of our business that has received the benefit. Therefore, we Debit Car Stock, under All Other Accounts, with \$510, the amount we allowed for the car. We explain that it is the Williams Overland.

If the dealer has an unusually large number of used cars he might choose to call one of these stocks his Used Car Stock and in that case he would make the Debit entry to Used Car Stocks.

We must now make our Credit entry. We ask: What part of our business was benefited? It was made possible through our Car Sales Department, so we Credit

Are Shown on the Forms on These Two Pages

MOTOR WORLD issue November 24, 1915

MOTOR WORLD SIMPLIFIED SYSTEM
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CASH RECEIPTS AND SALES RECORD
C R E D I T S

DATE Jan 31st 1915

INCOME ACCOUNTS				ALL OTHER ACCOUNTS		CUSTOMERS ACCOUNTS				
GAS OIL GREASE	SALES	REPAIRS	PARTS ACCESS.	STORAGE	CAR SALES	EXPLANATION	MISC'L.	EXPLANATION	NAME	CR AM'T.
				A	15/10 00	Blank Car 17834				
				B	15/10 00	" " 17835				
				C		Barrett Note	5/10 00	Notes Rec'ble		
				D	15/10 00	Blank Car 17836				
				E					Ed. Smith	3/10 00
				F	15/10 00	Blank Car 17837				
				G	4/10 00	Wmo. Overland				
				H		Trade	755 00	Brown Res Allowance		
		50 00	90 18 00	I		Rebuilding Brown Res				
				J	755 00	Brown Res				
				K	15/10 00	Blank Car 17838				
				L	15/10 00	Blank Car 17839				

50 00 18 00 10225 00 1265 00 310 00

CREDITS

10,293.00

10,225.00

510.00

1,265.00

755.00

310.00

11,868.00

INCOMES
REPAIR DEPT.
PARTS & ACCESSORIES
CAR SALES
ALL OTHER ACCOUNTS
NOTES RECEIVABLE
BROWN'S ALLOWANCE
CUSTOMERS' ACCT'S CREDITED

THIS IS FORM 1

Car Sales with \$1,510 and explain that it is Blank car, 17,837. Even though this car is not sold for some time the Car Sales Department must not be deprived of its earning. A car has been disposed of and the department must have the credit.

Selling the Traded-in Car

(Entry G)

Let us assume that the Taxicab Co. offers us \$410 for this Williams Overland. We have had some difficulty getting our \$510 out of it, so we let it go for \$410 cash. What part of our business received this benefit? It was, of course, our Cash, so we Debit Cash with \$410. We must now make our Credit entry.

Right here is where the dealer might err. But there is only one way to handle this, and it is a common sense way that cannot be misunderstood once the idea is grasped. Ask yourself: What part of the business gave this benefit? How did you get the \$410? You sold a car, did you not? Where did you get the car? It would come from but one place—the Car Stock. If it came from Car Stock it was a Car Sale and so it was the Car Sales Department that gave the benefit, and there is no other answer to the question. Regardless of how you might be inclined to account for this sale this is the way it should be done. So we Credit the Car Sales Department with \$410 and explain that it is the Williams Overland.

You may be confused by the fact that you paid \$510 for this car and have sold it for \$410; you have lost \$100. That will be learned at the end of the month even if you don't know it now, for the \$400 will be included in your Car Sales Income and the \$500 will be in your Car Sales Expense, and the difference will stick out like a sore thumb. Don't worry about not knowing you have lost \$100. You'll know it all right.

Deferred Sale and Trade

(Entry H)

We shall now take up a deal that is a little complicated to a beginner. John Brown says he will buy a car but doesn't want it until spring. He also wants us to take his old Reo in at half the price of a new car and sell it for him. When he takes delivery of his new car in the spring he will pay us the remainder of the list price. We agree to this and take the Reo in at \$755.

Now, what has happened? We have taken a car from Brown but have not made a sale. We will not make the sale until Brown agrees to take the car; he says he will purchase in the spring and until the date he has fixed comes around there is NO SALE.

What has happened is this: We have

in our possession a car that does not belong to us. It is Brown's and we are under obligations to him for the car or its value. But since we have taken it into our possession what do we do with it? We put it into our Car Stock, which means that we run it out into the garage and put it up for sale. It is one of our cars-to-be-sold, and yet it isn't ours at all. It is much the same as if we had borrowed something from Brown and it is an obligation to him.

We must now make a Debit entry. What part of our business received this benefit? Car stock, didn't it? So we Debit Car Stock with \$755, the agreed value of the car, and explain that it is the Brown Reo. We must now make our Credit entry.

What part of our business gave this benefit? We have the car because we are making an allowance in a trade, so the entry is this: "Brown Reo allowance." This means that we allowed Brown this amount on his Reo in trade, and the entry stands as an obligation of our business to him. Until the deal is consummated we owe Brown this car or its value, \$755.

Repairing Traded-in Cars

(Entry I)

We now have the car in our possession and want to sell it and get \$755 out of it so we can come through clean when Brown gets ready to take delivery in the spring. The car needs a little overhauling and we think we may be able to get more than \$755 out of it if we have some work done on it, so we send it to the shop for certain repairs.

These cost \$50 for labor and \$18 for parts and accessories. When the foreman brings in the order with his notification that the job is done, we have another transaction to make. We must therefore make a Debit entry and a Credit entry. What is our Debit entry?

We ask: What part of our business received this benefit of \$68? Why did we have this work done? We did it to increase our chances of selling the car. It was to help out our car sales, so it was the Car Sales Department that received the benefit.

Therefore, our Debit entry is to Car Sales and is an Expense, so it is Car Sales Expense. It goes under All Other Accounts and we explain in connection with it that the work is "Rebuilding Brown Reo."

This work should be charged up at cost. If the repairshop makes a profit on the Sales Department and if the Sales Department makes a profit when the car is sold, we have made a double profit, and this is not proper accounting.

One profit, and that a legitimate profit, is enough. How do we charge labor at cost? It is easy enough to know what the cost of parts and accessories is, but

how about labor? That also it not difficult. If the total expense of the shop last month, as shown by Form 2, was \$600, and if we did 1,000 hours of paid labor, the labor cost us 60 cents an hour, did it not? Therefore, we would charge this inter-departmental job at the cost price, 60 cents, instead of at the 75-cent rate that we charge to customers.

Some dealers may still be inclined to give the shop 75 cents an hour on this work, but this should NOT BE DONE.

The Credit entry is made the same as a regular repair job with the exception that it is at cost.

Selling a Car for a Customer

(Entry J)

We get a chance to sell the Brown Reo to George Lane. He won't pay more than \$755 for it. We find we can't get the \$755 plus the work we laid out in rebuilding the car, so we decide to make a quick turnover and let the car go at \$755, for cash. What is our Debit entry?

Our Cash is increased, is it not? So Cash received the benefit. Therefore we Debit Cash with the \$755. What is our Credit entry?

As in Entry G, let us again assert that every time we sell a car it is the Car Sales Department that gives the benefit to the business. It doesn't make any difference what the car is, the Car Sales Department gives the benefit. Forget for a moment that the car is part of a trade; simply Credit Car Sales with \$755 and explain that it is the sale of the Brown Reo.

Consummating Deferred Sale

(Entry K)

Let us take a step forward on the calendar and assume that it is the time Brown said he would buy a new car. According to his agreement he owes us only \$755, half the price of a new car. We have accepted his old car for the remaining \$755.

He pays us \$755 cash and takes the new Blank car. What is our Debit entry? We ask: What part of our business received this benefit? It was our Cash, of course, so we Debit Cash with \$755. We must now make a Credit entry. What is it?

What part of our business gave this benefit? Our Car Sales, did it not? So we Credit Car Sales with \$1,510. The benefit that the Car Sales gave is not \$755, which is the amount received from Brown; it is \$1,510, the price of the car. Since the Car Sales Department gave this amount of benefit we must Credit Car Sales with that amount.

Every time a new car is sold the Car Sales should be credited with \$1,510, but if we haven't backbone enough to get the \$1,510 and we take \$1,300, we can en-

ter but \$1,300 to the Credit of Car Sales under that department's income. Then, at the end of the month we should take a sheet of paper and add up one by one the car sales we made and find what we got for the cars. We should also add up what we would have gotten had we secured the proper price. Set this figure down somewhere and look at it every month. See how much you are robbing your Car Sales Department of its legitimate profits.

It will stare us in the face as an indication of our lack of backbone and will make us ashamed of ourselves. No man can run a regular business system and remain a price-cutter very long. He will soon see how his big loss is taking bread and enjoyment from the family that is dependent entirely upon him for what it gets out of life. Think that over, even if you NEVER have any system!

Well, to get back to the entry: We have \$1,510 on the Credit side and \$755 under Cash on the Debit side. We must balance things up. We must have as much on one side as on the other. What is the remaining Debit of \$755? It must be that allowance on the Brown Reo, must it not? That is just what it is. But it isn't \$755 or a car coming from Brown to us. You remember that at the time we took this car in we said it was one of our obligations, to Brown. So the Debit or benefit comes when we cancel this obligation. When we entered the obligation as a Credit in Entry H we called it "Brown Reo allowance," and we now DEBIT Brown Reo Allowance, \$755, for that is the part of the business that receives the benefit. Our obligations are reduced. The Brown deferred sale and trade is now entirely closed up.

We lost \$68 on it, though, didn't we? We sure did! We have \$68 as a Debit in Entry I that will go in with the Car Sales expenses at the end of the month, and since the \$68 is at no place included in the Car Sales Income it is an expense that we don't get back.

If this \$68 had not been charged to Car Sales it probably would have gone blindly into the expenses of the Repair Department. At the end of the month we would have thought the Repair Department was losing money, while all the time the loss should have been stood by Car Sales.

Eventually the dealer might have thought his Repair Department was unprofitable and might have done away with it, only to discover later that it was his Car Sales and not his Repairs that was the losing end of the business.

Selling a Consigned Car **(Entry L)**

This entry is put here solely to fit in with what is coming on Form 2. Form 2 takes up, among other things, the

handling of consigned cars, and this car is one that has been consigned, even though that does not show on Form 1. Note that the car is No. 17,839 and note how it is handled on Form 2.

The Recapitulation

As on the forms that were inserted in Motor World November 24 as a supplement we make a recapitulation. We add our columns and make up the tables (recapitulation) at the bottom. In the All Other Accounts columns we pick out various items and list them separately. If the Recapitulations on the supplements were studied this requires no explanation. Note that the Debit and Credit sides total \$11,868 each. The form balances.

Form 2

Let us now take up the Expense sheet, Form 2. We shall cover the buying of cars.

For cash,
With notes, and
On consignment.

Buying Cars for Cash **(Entry A)**

The dealer receives three Blank cars from the factory, \$1,200 each, f. o. b. factory, which means that they cost the dealer \$1,200 and that he must pay the freight from the factory. The freight is \$10 in each case. In this instance the dealer pays \$3,630 by check at the time he takes the cars from the railroad company.

For our Debit entry, what part of our business received this benefit? The cars were put into Car Stock, so it is Car Stock that receives the benefit, so we Debit Car Stock with the value of the cars, which is \$3,600. This goes, of course, under Stock Accounts. We also set down the numbers of the cars.

We have yet to Debit the \$30 freight; this is an expense of the Car Sales Department, which received the benefit of the shipment, so we Debit \$30 under Car Sales Expense.

What is our Credit entry? What part gave the benefit? Cash, did it not? So we Credit Cash with the full \$3,630 and explain that it is for new cars Nos. 17,834-5-6.

Getting Cars on Notes **(Entry B)**

Two cars are received for which the company has agreed to take the dealer's note for \$2,400. The notes were sent to the factory along with the order so the dealer merely takes the cars from the freight house. The Debit entry is the same in all cases of cars received. Even if they go from the freight house to

the customer they must in our accounting go into Car Stock and out again, for that is what really happens. Any car we sell must first, in theory at least, be a part of our stock.

Now for the Credit entry. What part of the business gave this benefit? As you remember from preceding instalments it is our Notes Payable account, so we Credit Notes Payable, \$2,400. We also Credit Cash with \$20, the amount of the freight, for the dealer paid the railroad company this freight. That is not a transaction between him and the factory, but is one of his expenses, a transaction between himself and the railroad company. What the f. o. b. means is: "You must pay the freight." The real words are: "Free On Board."

Taking Cars on Consignment **(Entry C)**

Let us now receive a car on consignment. This means that the car is turned over to us by the factory to sell. It remains the factory's until we sell it. Then we have to pay the factory for it.

The car, of course, goes into Car Stock, so we Debit Car Stock with \$1,200 and, as in each case, record the number of the car. We also Debit Car Sales with the \$10 freight and Credit Cash with the same amount, \$10.

When we say we Debit Car Stock, we are correct, but Car Stock is an Asset and we have acquired an Asset without paying for it, so in reality we cannot call this one of our Assets. How shall we show this? We show it by calling the account "Car Stock (Consigned)," and, while this is listed as an Asset, we list an equal amount under our Liabilities (See Credit Entry C) by Crediting, under All Other Accounts, the "Blank Motor Car Co." This Liability offsets our Asset, "Car Stock (Consigned)."

Now, while we owe this amount to the Blank Motor Car Co. we do so only on condition that the car is sold. How do we show this? By writing after Blank Motor Car Co. "Consigned Car Account." Such an account is known as a Contingent Liability or a Liability that is contingent upon our selling the car. In other words, if we do not sell the car there is no Liability.

Our Debit in this case, then, is to "Car Stock (Consigned)," which we place in All Other Accounts, writing the name of the account and the number of the car in the Account Column. The benefit was given by what? In this case it was given by the Blank Motor Car Co. But while this is a Credit to an Account Payable we wish to distinguish this particular account from all others, for we are not liable to the Blank Motor Car Co. until the car is sold, so in parentheses () we write after the name of the account "(Consigned Car Account)." The Credit entry we make under All Other Ac-

Form 2 Entries for This Instalment of the System

Supplement to **MOTOR**

①		③		②		④		⑤		⑥			
DATE Jan 31st 1915		CASH PAID AND EXPENSE RECORD										MOTOR WORLD SIMPLIFIED SYSTEM Copyrighted	
		D E B I T S											
STOCK ACCOUNTS			EXPENSE ACCOUNTS										
AM'T.		NAME	GENERAL DEP'T.		GAS DEP'T.		REPAIR DEP'T.		STORAGE DEP'T.				
			AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT			
A	3600 00	313 Blanks 1783	4-5-6										
B	2400 00	213 Blanks 1783	7-8										
C													
D													
E	1200 00	Car Stock 17839-											
F													
G													
7200.00													

DEBITS

STOCK ACCOUNT-CAR STOCK

7200.00

CAR SALES EXPENSE

FREIGHT -

60.00

COST OF BLANKS - 17834 TO 9

7200.00

• BROWN REQ

755.00

• WMS. OVERLAND

510.00

8465.00 8525.00

ALL OTHER ACCOUNTS

CAR STOCK - CONSIGNED

1200.00

BLANK MO. CAR (CONSIGNED CAR %

1200.00

NOTES PAYABLE

2400.00

4800.00
20,525.00

counts, writing the full name of the account in the Account column.

The benefit was given by our Consigned Car Account, and we make our Credit entry to "Blank Motor Car Co., Consigned Cars," the "Co." being the factory.

Paying for Consigned Cars**(Entry D)**

We now sell the consigned car and send \$1,200 to the factory. What part of the business received this benefit?

You will remember, when the sale was made, that on Form 1 we made the Entry L, and Cash RECEIVED and Car Sales GAVE the benefit. With this in mind, remember that we are now liable to the Blank Motor Car Co. for a consigned car. We have sold the car and now proceed to pay for it. What received the benefit? Our Liabilities, or debts, have been reduced, and in particular our liability to "Blank Motor Car Co. (Consigned Car Account)," has received the benefit, so we Debit this account under All Other Accounts and our Credit entry is under All Cash Paid, Check No. 158. Our slate is now clean for we have Debited the Blank Motor Car Co. for the Credit that we gave them when the car was received by us.

Taking Over Consigned Cars**(Entry E)**

You will remember that in the previous paragraph we stated no matter how the car was delivered, in theory it had to pass through our stock room, and our Car Stock Account had to receive the benefit at some time or other. This particular car now stands on our books in the Consigned Car Stock Account. Let us make an entry, taking it out of this account and placing it in Car Stock. This is done in order that we may show a true statement of our business at the end of the month; for example, we should show at all times every car in our possession and distinguish between those cars that are the property of the business and those that are consigned to us for sale.

When this particular car was consigned we Debited "Car Stock (Consigned)." Now we place this consigned car in our stock and Credit "Car Stock (Consigned)," for this account gave the benefit to our own Car Stock and if our Car Stock Account received the benefit we Debit Car Stock. This we call a journal entry inasmuch as Cash did not enter into the transaction, so we make this memorandum "Journal Entry" in the Cash column and the amount of the transaction goes into Stock Accounts

on the Debit side and the Credit into All Other Accounts.

Now, what do our figures tell us?

1—We received a car on consignment (Entry C, Debit).

2—We showed our liability for this car (Entry C, Credit).

3—We showed the cancelling of this liability (Entry D, Debit).

4—We showed payment for the car by check, to the company (Entry D, Credit).

5—We show that we have placed in our Car Stock a car that formerly was carried on consignment (Entry E, Debit).

6—We show that we no longer have a car on consignment (Entry E, Credit).

Cost of Cars Sold**(Entry F)**

At the end of the month we run back through the Car Sales Income column on Form 1 and find what cars were sold and what they cost us. We find they cost us \$8,465, so we enter this as a Debit under Car Sales Expense. What is our Credit entry? The benefit came from Car Stock, so we Credit Car Stock with the \$8,465.

Paying the Notes**(Entry G)**

The payment of the note we gave for the cars is handled the same as the

Are Shown on the Forms on These Two Pages

WORLD issue November 24, 1915

MOTOR WORLD SIMPLIFIED SYSTEM Copyrighted										CASH PAID AND EXPENSE RECORD		DATE Jan 31st 1915	
D E B I T S					C R E D I T S								
PARTS & ACCESS. DEPT.		CAR SALES		ALL OTHER ACCOUNTS		CHECK NO.	ALL CASH PAID	ALL OTHER ACCOUNTS		TO WHOM PAID			
AM'T.	ACCOUNT	AM'T.	ACCOUNT	AM'T.	ACCOUNT			AM'T.	ACCOUNT				
	A 30 00	Freight				155	3630 00		Cars 17834-5-6	Blank M. Car Co.			
	B 20 00					156	20 00	2400 00	Notes Payable	Blank M. Car Co.			
	C 10 00	"	1200 00	Consigned Car Stock	17839	157	10 00	1200 00	Blank M. Co. (Consigned Car Acct)				
	D		1200 00	B. M. Co. (Consigned)		158	1200 00		Blank M. Car Co.				
	E							1200 00	Consigned Car Stock 17839				
	F 8465 00	Cost of Cars Sold						8465 00	Car Stock				
	G		2400 00	Notes Payable		159	2400 00		Blank Motor Car Co.				
		8525.00	4800.00					7260.00	13265.00				

CREDITS

7,260.00 ALL CASH PAID

ALL OTHER ACCOUNTS

8465.00 CAR STOCK
 1200.00 BLANK M.O. CAR CO. (CONSIG. CAR ACCT)
 1200.00 CONSIGNED CAR STOCK
 2400.00 NOTES PAYABLE

13,265.00
 20,525.00

THIS IS
FORM 2

payment of notes, Entry M, Form 2, in Instalment 5. We Debit Notes Payable and Credit Cash. It is assumed for the sake of space and simplicity that this note does not bear interest. Interest was explained in previous instalments.

The Recapitulation

We now bring down our totals into tables at the bottom of the form. We itemize the All Other Accounts columns and also itemize the Cost of Cars Sold, so we can see where we stand.

Next we shall bring together the Recapitulations on Forms 1 and 2 into statements of Profit and Loss and of Assets and Liabilities and a Financial Statement. Meantime, ask any questions you desire. We WANT YOU TO KNOW.

Been Looking for It!

Your Simplified System is what I have been looking for for some time. Will ask you to ship me your complete outfit, as described in Motor World, at once. I would like to have this sure to open my new system beginning Jan. 1.—H. L. Simpson, Gainesville, Tex.

Express one Simplified System Accounting Binder with Index, five hundred each form, rush.—Auto Parts & Repair Co., Springfield Mass.

EVENTS OF INTEREST DURING
NEW YORK SHOW WEEK

Wednesday, Dec. 29—Bosch meeting of branch managers and department heads—Factory.

Thursday, Dec. 30—Bosch meeting of distributors and engineering department—Factory.

Bosch banquet—Reisenweber's.

Friday, Dec. 31—Bosch excursion to factory, Springfield, Mass.

Monday, Jan. 3—Velle meeting—Claridge—9 A. M.

White meeting—Astor—after show.

Tuesday, Jan. 4—Chalmers luncheon—Churchill's—noon.

N. A. C. C. banquet—Waldorf—Astoria.

Saxon luncheon—Biltmore—1 P. M.

Franklin luncheon—Manhattan—12 to 2 P. M.

Wednesday, Jan. 5—Mitchell meeting—Biltmore—noon.

Motor & Accessory Manufacturers banquet—Waldorf—Astoria.

N. A. C. C. directors meeting—7 E. 42nd St.—10 A. M.

Thursday, Jan. 6—Remington meeting—Cumberland, 1:30 P. M.

Hupmobile luncheon—Biltmore.

S. A. E. banquet—Plaza.

Jeffery dinner and dealers' meeting.

Palge dinner—Healy's.

Electric Storage Battery Co. dinner—Imperial.

A. J. Picard & Co. meeting—Cafe des Beaux Arts.

Franklin luncheon—Manhattan—12 to 2 P. M.

Chandler breakfast—Biltmore—9 A. M.

Splitdorf meeting of branch managers—Astor.

Friday, Jan. 7—Emil Grossman Mfg. Co., salesmen's convention—Biltmore.

Delco Wins Against North East

NEW YORK, Dec. 28—The Delco starter has won its patent infringement suit against the North East starter; the court of appeals has ruled that both Coleman patents, Nos. 745,157 and 842,827, under which the Dayton Engineering Laboratories Co., Dayton, is a licensee, are valid and infringed by the starter of the North East Electric Co., Rochester, N. Y. No. 745,157 covers the use of differential gearing and No. 842,827 covers field intensities for charging and starting. The suit was nominally against the Sidney B. Bowman Automobile Co., a New York city dealer.

More System Comments

I have your copy of Motor World bearing date of November 24, in which you describe your Simplified System of Accounting. I might say that that is about the finest thing I ever saw, and easy to handle. What I would like to know is can you furnish this book with the necessary forms, and at what price?—The Midway Garage, Corunna, Ind.

We are very much interested in your new bookkeeping system, given out through your magazine. This is exactly what we are in need of. We use a double entry system, but same is not thorough enough to suit.—Mrs. L. E. Fisher, Sedalia, Mo.

Accessory Exhibitors at the National Show in New York

Exhibiting in New York Only

Able Engine Co., Inc. New York
 Adams Express Co. New York
 Adamson Mfg. Co. E. Palestine, O.
 American Express Co. New York
 Asch & Co. New York
 American Ever Ready Works. New York
 J. Alexander Mfg. Co. New York
 Baush Machine Tool Co. Springfield, Mass.
 Eug. Bournonville Welding Co. New York
 Bosch Magneto Co. New York
 Boston Blacking Co. E. Cambridge, Mass.
 Brilliant Products Co. New York
 Budd Mfg. Co. Philadelphia
 Bridgeport Coach Lace Co. Bridgeport, Conn.
 Brilliant Products Co. New York
 M. K. Bowman-Edson Co. New York
 Cignet Rear Car Co. Buffalo
 Cleveland Worm & Gear Co. Cleveland
 Continental Auto Heater Co. New York
 Corbin Screw Corp. New Britain, Conn.
 Cox Brass Mfg. Co. Albany
 Dann Spring Insert Co. Chicago
 Dunham Piston Ring Co. New York
 Dayton Rubber Mfg. Co. Dayton
 Disco Electric Starter Co. Detroit
 Electric Automatic Cigar Lighter Co. N. Y.
 E. A. Laboratories, Inc. Brooklyn, N. Y.
 English & Mersick Co. New Haven, Conn.
 Eastern Rubber Co. Philadelphia
 Eisenstadt Mfg. Co. St. Louis
 Ericson Mfg. Co. Buffalo
 J. M. Faw, Inc. New York
 Fitzgerald Mfg. Co. Torrington, Conn.
 Foster Accessories Co. Chicago
 Peter A. Frasse & Co., Inc. New York
 Fryer-Auster Co. Providence, R. I.
 General Electric Co. Schenectady, N. Y.
 General Tire & Rubber Co. Kansas City
 Emil Grossman Mfg. Co., Inc. Brooklyn, N. Y.
 General Tire & Rubber Co. Kansas City
 Guide Motor Lamp Mfg. Co. Cleveland
 H. & D. Co., Inc. Goodlands, Ind.
 Hill Mfg. Co. New York
 Hill Pump Valve Co. Chicago
 Holt Welles Co. New York
 Houpt Machine Co. New York
 Humboldt Mach. & Stamping Co. Long Island City, N. Y.
 Hartford Machine Screw Co. Hartford, Conn.
 Hartford Clock Co. Hartford, Conn.
 International Coat Co. New York
 Irion & Mueller. Louisville
 J. M. Shock Absorber Co., Inc. Philadelphia
 Janney-Steinmetz & Co. Philadelphia
 J. H. Tonneau Shield Co. New York
 Jay & Dee Specialty Co. New York
 Juhasz Carburetor Co. New York
 K. T. Lever Spring Co., Inc. New York
 Kaless-Haskel Co. Detroit
 Laidlaw Co., Inc. New York
 Lane Bros. & Co. Poughkeepsie, N. Y.
 Lescina Float Carburetor Co. Newark, N. J.
 Light Mfg. & Foundry Co. Pottstown, Pa.
 Lowe Motor Supplies Co. New York
 M. & A. M. Offices. New York
 Mansfield Mfg. Corp. Syracuse
 Marburg Bros. New York
 F. W. Mann Co. Milford, Conn.
 Matt Irion & Sons. Louisville, Ky.
 Mecca Machinery Co. Brooklyn
 S. W. Merritt Co. New York
 Metal Specialties Mfg. Co. New York
 Charles E. Miller. New York
 Morse Chain Co. Ithaca, N. Y.
 L. J. Mutt Co. Boston
 Motor Compressor Co. Newark, N. J.
 Marathon Tire Sales Co. New York
 Marvel Mist Mfg. Co. Brooklyn, N. Y.
 Motor Appurtenances Corp. New York
 Motor Necessity Co. Chicago
 Motor Products, Inc. Stamford, Conn.
 Paul G. Niehoff & Co. Chicago
 New Era Spring & Specialty Co. Detroit
 Newmastic Co. New York
 Nokoloy Signal Co. New York
 Nonpareil Horn Mfg. Co. New York
 O'Bannon Corp. New York
 Platt & Washburn Refining Co. New York
 Pittsburg Electric Spec. Co. New York

G. Piel Co. Long Island City, N. Y.
 Pouvalsmith Corp. Poughkeepsie, N. Y.
 Price Elec. Devices Corp. Waynesboro, Va.
 Prismatic Lens Co. Hoboken
 Rear Safety Signal Sales Co. Baltimore
 J. T. Renfro & Co. New York
 P. Rielly & Son. Newark, N. J.
 Rutherford Rubber Co. Rutherford, N. J.
 Seiss Mfg. Co. Toledo
 Sharp Spark Plug Co. Cleveland
 Silver Co. New York
 Small & Singleton. Brooklyn, N. Y.
 Standard Accessories Co. New York
 John T. Stanley Co., Inc. New York
 Sterling Tire Co. Rutherford
 Stewart Accessories Co. Detroit
 F. W. Stewart. Chicago
 Story & Reed, Inc. New York
 Sunderman Safety Carburetor Corp. Newburg, N. Y.
 Superior Lamp Mfg. Co. New York
 G. T. Sutterley & Co. Philadelphia
 Triple Action Spring Co. New York
 U. S. Gauge Co. New York
 Utility Products Co., Inc. New York
 Victor Auto Parts Co. Cincinnati
 Ward Leonard Electric Co. Bronxville, N. Y.
 Wasson Piston Ring Co. Hoboken, N. J.
 Weaver Mfg. Co. Springfield, Ill.
 Webber Mfg. Co. Boston
 Wells Fargo & Co. New York
 Westinghouse Air Spring Co. New York
 Weston Electrical Instrument Co. Newark, N. J.
 West Steel Casting Co. Cleveland
 Whalen Engineering Co. New York
 White & Bagley Co. New York
 C. A. Willey Co. Long Island City, N. Y.
 Woodbridge Chemical Co. New York
 Wood Mfg. Co. Fairfield, Conn.

Exhibiting in New York and Chicago

American Taximeter Co. New York
 Armstrong Cork Co. Pittsburgh
 Auto Gear & Parts Co. New York
 American Bronze Co. Berwyn, Pa.
 Apple Electric Co. Dayton
 Automobile Supply & Mfg. Co. Brooklyn
 B. & L. Auto Lamp Co. New York
 Benford Mfg. Co. Mt. Vernon, N. Y.
 Blackledge Mfg. Co., John W. Chicago
 Brown, William H. Cleveland
 Brown-Lipe-Chapin Co. Syracuse
 Brown-Lipe Gear Co. Syracuse
 Brunner Mfg. Co. Utica
 Buda Co. Harvey, Ill.
 Burd High Compression Ring Co. Rockford
 Byrne, Kingston & Co. Kokomo
 Celfor Tool Co. Buchanan, Mich.
 Class Journal Co. New York
 Curtis Pneumatic Machinery Co. St. Louis
 Cutting, Armstrong & Smith Sales Co. Detroit
 F. S. Carr Co. Boston
 Champion Auto Equipment Co. Chicago
 Champion Ignition Co. Flint
 Clear Vision Cleaner Co. New York
 Cowles & Co. New Haven, Conn.
 Compression Inner Tube Co. Louisville, Ky.
 Cramp, Wm. & Sons, Ship & Engine Bldg. Co. Philadelphia
 Daly & Co. Detroit
 Detroit Lubricator Co. Detroit
 Dixon Crucible Co., Joseph. Jersey City
 Doehler Die Casting Co. Brooklyn, N. Y.
 Double Fabric Tire Co. Auburn, Ind.
 Dyneto Electric Co. Syracuse
 Efficiency Oil Corp. St. Louis
 Essex Rubber Co. Trenton, N. J.
 Evans Engine Co., Inc. New York
 Ever Tight Piston Ring Co. St. Louis
 Eclipse Machine Co. Elmira, N. Y.
 Electric Storage Battery Co. Philadelphia
 Findelsen & Kropf Mfg. Co. Chicago
 J. Rogers Flannery & Co. Pittsburgh
 Friedstedt Rlm Contractor Co. Chicago
 Fulton Co. Knoxville, Tenn.
 Gates Mfg. Co. Indianapolis, Ind.
 Gabriel Mfg. Co. Cleveland

Garford Mfg. Co. Elyria, O.
 Gemco Mfg. Co. Milwaukee
 General Bakelite Co. New York
 Globe Machine & Stamping Co. Cleveland
 Gould Storage Battery Co. New York
 Gray & Davis, Inc. Boston
 Halladay Co., L. P. Streator, Ill.
 Harris Oil Co., A. W. Providence
 Hartford Suspension Co. Jersey City
 Hassler, Inc., Robert H. Indianapolis
 Hayes Mfg. Co. Detroit
 Heinze Electric Co. Lowell, Mass.
 Heinze Co., John O. Springfield, O.
 Herz & Co. New York
 Hill-Smith Metal Goods Co. Boston
 Houk Mfg. Co. Buffalo
 Hydraulic Pressed Steel Co. Cleveland
 Interstate Electric Co. New Orleans
 Kemco Elec. Mfg. Co. Cleveland
 Kellogg Mfg. Co. Rochester
 Kent Mfg. Wks., Atwater. Philadelphia
 Kokomo Electric Co. Kokomo
 K-W Ignition Co. Cleveland
 Leece-Neville Co. Cleveland
 Lipman Air Appliance Co. Beloit, Wis.
 Lovell-McConnell Mfg. Co. Newark, N. J.
 McQuay-Norris Mfg. Co. St. Louis
 Manzel Bros. Co. Buffalo
 Master Carburetor Corp. Detroit
 Metal Stamping Co. Long Island City, N. Y.
 Militaire Autocycle of America, Inc. Buffalo
 Mosler & Co., A. R. Mt. Vernon, N. Y.
 Motometer Co., Inc. New York
 North East Electric Co. Rochester
 Oakes Co. Indianapolis
 Peerless Motor Spec. Co., Inc. New York
 Perkins-Campbell Co. Cincinnati
 Philadelphia Storage Battery Co. Philadelphia
 A. J. Picard & Co. New York
 William E. Pratt Mfg. Co. Chicago
 Pyrene Mfg. Co. New York
 Pantasote Co. New York
 Perfection Spring Service Co. Cleveland
 Pittsburgh Model Engine Co. Pittsburgh
 Platt & Washburn Refining Co. New York
 Prest-O-Lite Co. Indianapolis
 Pull-U-Out Sales Co. St. Louis
 Rose Mfg. Co. Philadelphia
 Royal Equipment Co. Bridgeport, Conn.
 Splitter Puncture Plug Co., Inc. New York
 Standard Roller Bearing Co. Philadelphia
 Standard Woven Fabric Co. Framingham, Mass.
 Stevens & Co. New York
 Sager Co., J. H. Rochester
 A. Schrader & Son, Inc. Brooklyn, N. Y.
 Schwarz Wheel Co. Philadelphia
 Shakespeare Co. Kalamazoo, Mich.
 C. A. Shaler Co. Waupun, Wis.
 Sparks-Withington Co. Jackson, Mich.
 Spicer Mfg. Co. Plainfield, N. J.
 Splittorf Electrical Co. Newark, N. J.
 Springfield Metal Body Co. Springfield, Mass.
 Standard Thermometer Co. Boston
 Stewart-Warner Speedometer Co. Chicago
 Stromberg Motor Devices Co. Chicago
 Strauss & Buegeleisen. New York
 Swedish Crucible Steel Co. Detroit
 Stewart Accessories Co. Detroit
 Charles O. Tingley & Co. Rahway, N. J.
 Turner Brass Works. Sycamore, Ill.
 U. S. Air Compressor Co. Cleveland
 Universal Rim Co. Chicago
 Universal Shock Eliminator Co. New York
 U. S. Light & Heating Corp. Niagara Falls, N. Y.
 Vacuum Oil Co. Rochester
 Van Sicken Co. Elgin, Ill.
 Victor Lamp Co. Cincinnati
 Veeder Mfg. Co. Hartford, Conn.
 Voorhees Rubber Mfg. Co. Jersey City
 Waltham Watch Co. Waltham
 Wayne Oil Tank & Pump Co. New York
 Westinghouse Electric & Mfg. Co. E. Pittsburgh
 Wheeler & Schebler. Indianapolis
 Willard Storage Battery Co. Cleveland
 X Laboratories. Boston
 Zenith Carburetor Co. Detroit

Lest We Forget

A New Year's Thought from C. J. Reilly

By Ray W. Sherman

"I SUPPOSE," airily bantered Tommy Trumbull, as he threw the burnt match into the waste basket and drew heavily on his near meerschauum, "I suppose our old friend Charley has his list of New Year's resolutions all clipped together and ready for adoption seriatim."

"No, that's the way you break them," contended Reilly. "You adopt them in toto, as it were. Seriatim is how you break them. Is that right, Charley?"

No one said it right out, but both Reilly and Tommy referred to a rather formidable array of New Year's resolves that Charley McGrain, Reilly's senior salesman, had lined up just one year ago. Charley wasn't at all secretive about them, either. In fact, he seemed proud of them. He averred—and was not disputed, for he was right—that if he kept

"Aw-w-w!" he exclaimed. "Forget that, will you?"

"Never mind, Charley; you had a good idea," soothingly replied Reilly. "It was better than never giving a thought to good resolutions."

"Yes, that's right," smiled Tommy. He said it out of the corner of his mouth along with a puff of smoke. 'Twas not what he said, but how he said it, that roiled Charley, and the latter was on the verge of losing his temper, which was the subject of one of his resolutions of one year ago.

The Great Trouble

"Boys, boys," admonished Reilly. "You're making a fine start toward the new year. We all have made resolutions and broken them; that is one of the characteristics of resolutions. If a reso-



time and we land back somewhere near where we started."

"Sad, but true," admitted Charley, now recovered of his usual congeniality.

"This isn't necessarily confined to New Year's resolutions, but there is a plan that will make any resolution permanent. I have used it myself and found it successful. If you lads care to try it you are welcome to it; I have no patent or copyright on the idea."

"What is it?" asked Tommy.

"This," said Reilly. "Before I go into details let us analyze the resolution situation. We are all agreed that if we kept the resolutions we make we would be better men, and that, if we are business men, we would have better businesses. Now—the great difficulty is in keeping the resolution. The difficulty is because we quit trying to do what we started out to do.

Means New Habits

"Resolutions necessitate new habits. This is a hard job. It takes time and persistence. New habits mean the remodeling of part of your life. It is easy to travel in a rut, and the old and established habits which we resolve to improve keep pushing us back into the rut and we gradually yield and get back into the rut. We yield because it is the easiest thing to do. Our will has failed.

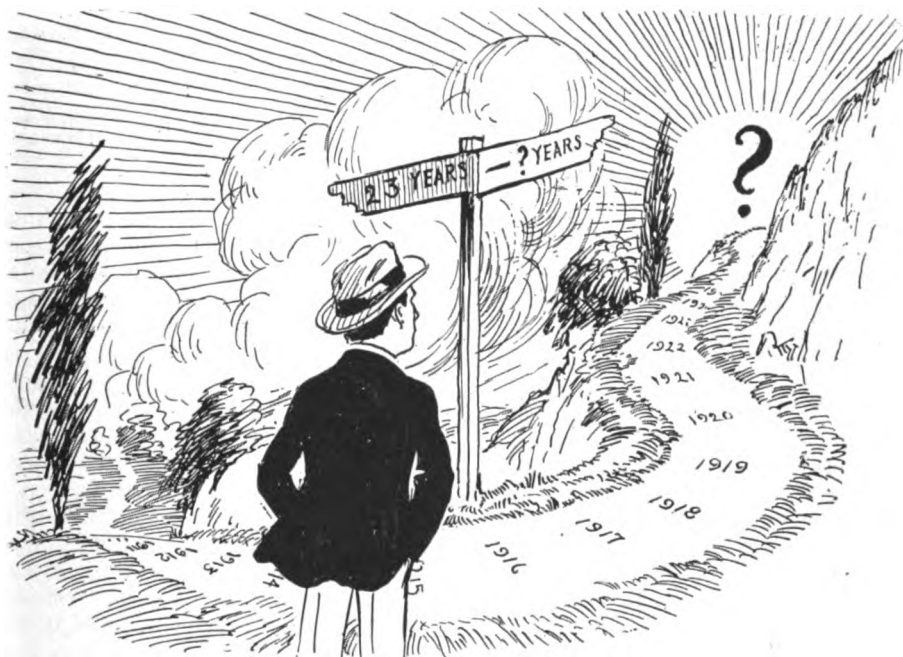
"The problem, then, is how to keep up the fight against old habits, how to keep our interest and enthusiasm from waning and how to supplement the power of our will. We need a reminder now and then, do we not? We can't depend on any friend to prod us along on these things, because the friend isn't always at our side and he is just as likely to forget as we are. We must eliminate a portion of the human element and inject the mechanical. And here it is!"

Reilly drew his daily calendar across the desk. On the page devoted to January 22 he wrote: "My resolutions. What have I done?" Then he turned to February 19 and did it again. He made other notations throughout the year, each one about three weeks distant from the other. "And there you are!"

"Simple," ejaculated Tommy.

"So simple it looks foolish," smiled Reilly, "but a simple little thing like that can be made one of the most important elements of a man's life. Of course, the calendar can't do it all. It can only help.

"Now, when the twenty-second day of



—back down the road of his three and twenty years and In the other direction—toward the dim haze of his future

all his resolves it would work wonders with himself. But the wonders failed to mature; the wall of resolutions crumbled and disappeared like the little boy's dam of sand after the little boy has poked a hole in the top with his finger.

Not What He Said, But—

Charley resented being kidded, especially by Tommy, who was several years his junior and had come into the Reilly establishment from high school.

lution isn't breakable it isn't a resolution. If it is kept it becomes a habit, a practice, a principle.

"There is, of course, such a thing as making so many resolutions that you can't keep any of them. The great trouble, however, is that we don't pay as much attention to keeping resolutions as we do to making them. At the time of making them we are all enthusiasm, bubbling over with the idea of self-betterment, but this wears off after a short

Go After Winter Business? Get Winter Profits!

© TAKE UP

CAR OWNERS!

—YOUR—

OVERHAULING BILL LAST SPRING

Came Due All at Once—Didn't It?

AVOID THIS

Suppose this winter you have a little OVERHAULING DONE EACH MONTH, then none of your bills will be large

ELECTRIC APPLIANCE COMPANY
CHICAGO

Auto Supplies
Electric Supplies

This car card is due to mail to owners. Get one and MAIL TO AUTO OWNERS.

WRITE FOR IT

MAIL 'EM IN POTTS

To keep an efficient force we must employ them the year 'round

To have the same man always work on Your Car we must employ him the year 'round

We want to retain our force and give you first-class service the year 'round

THIS WILL BE IMPOSSIBLE UNLESS YOU

HAVE YOUR OVERHAULING DONE DURING THE WINTER MONTHS

© TAKE UP

No Storage Charged While Overhauling

THEY TRIM LINE UP IN MOTORS AUTOMOBILES

Storing Your Car in Winter

Have you thought anything about the care of your car this winter? If you have a nicely heated garage of your own, this will not interest you. If not, consider the risk as well as the inconvenience of having your car in a place that is not provided with heat.

The damage to paint and tires, the effect of extreme cold, dampness and changing temperature, the expansion and contraction of metal, the hardening of oil in the transmission and differentials, is considerable. It's a very expensive way to house a car.

We can take care of you, at much less cost, in our modern, evenly-heated, fire-proof building, where your car will be always ready for you at a minute's notice.

Now is a good time to settle the question, while there is still some space available. Come and see us.

SERVICE

Expect first-class service at this garage—you'll get it. We have the facilities and the inclination—and we'll make go.

TELEPHONE WEST 702

GRAND AVENUE GARAGE

PAUL KOCH, Manager 2713-15 GRAND AVENUE

WINTER BUSINESS can be secured by proper planning. By letters, advertisements and personal solicitation get the car owner to have his car overhauled during the slack months in your shop. Better yet, get him to keep it running all winter. The big wall poster at the left is distributed to garagemen by A. O. Potts, a salesman of the Electric Appliance Co., Chicago. At the right is a folder sent to a big list of owners by the Grand Avenue Garage, Milwaukee.

January comes along and I turn over this leaf, I see this notation. I stop and think. That notation stares me in the face all day. It won't let me forget the things I have resolved to do. It is more sure and regular and persistent than any human reminder. It's as sure and regular as rent and taxes.

"The rest is up to me, absolutely, just as everything else concerning myself and my own betterment are up to me. The calendar has done its part. Now comes my part. If I really am sincere and want to keep the resolutions I have made I will make a new start in case I have not progressed as I should and would like to. If it isn't in me to progress in life and in business a reminder of this kind can't help me."

"It's Up To YOU"

"Nor anything else," added Charley.

"No, nor anything else," agreed Reilly. "The foundation of the whole structure of life and business is the man himself. There is no getting around it. If you were a rotten business man when you began, that may have been due to the condition in which you were placed by birth or early life, but if you remain a rotten business man it is the fault of yourself and yourself alone. Get me?"

"Then, every three weeks I find one

of these reminders. They become a whip over me. They drive me on. They won't let me lag. They will keep alive my desire to progress, and if I am capable of transforming my desire into action I WILL progress. I——"

Between You and Yourself

"But supposing somebody looks over your calendar——" began Tommy.

"Let them look!" exclaimed Reilly. "No one but myself knows what my resolutions are. I have set them down on a private memorandum; they are where no one can see them; and most of them, by the time I see the first memorandum, will be indelibly written on my memory! That's the beauty of it. It isn't even necessary to write all I have written on the calendar. Set down the word resolution, or any other old word that suggests the reminder to you. It is a secret between you and yourself.

"And as the rush of business and work continues through the year and your good thoughts and resolutions are brushed aside they will be automatically forced back into your scheme of things and if you have any honest desire to succeed you can't fail. But it's up to you, absolutely."

"I should think the dealers' association could do something of this kind,"

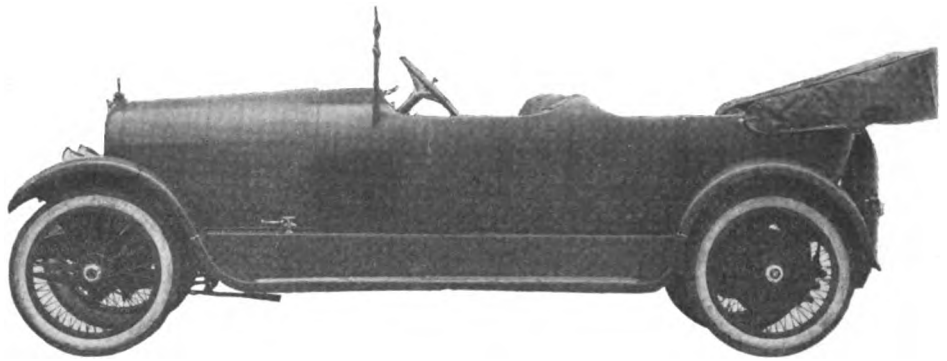
suggested Tommy. "Why couldn't each member pay a couple of dollars a month, hire a capable man as secretary, let him do the secretarial work and in addition let him write letters to those members who wished to be reminded of their resolutions?"

"Let him follow them up and make them answer! Let him chase them up personally if necessary and make a regular nuisance of himself! Let him——"

"That could be done if enough of the boys could see the good in it," said Reilly. "The secretary might even operate a personal and business efficiency bureau. There is no limit to what could be done in this line. But I have found this calendar reminder of greatest value to me. It is a personal matter that I must work out myself. I am the maker of my own future—so are you. There are no if's and and's about it. The greatest help to me is something that keeps these better things before me—lest I forget."

Tommy's mind in a fraction of a second looked back down the road of his three and twenty years and in another fraction turned in the other direction—toward the dim haze of his future years. There was solemnity and earnestness in him and he weighed each word—

"Lest—we—for—get."



Above—Side view of new Marmon Six showing smooth body lines with double cowl. Left—Front of car

Aluminum Cylinder Marmon Six at \$2,750

Unusually Light Chassis Results from Extensive Use of Aluminum—Valve-in-Head Motor

INDIANAPOLIS, Dec. 24—The Nordyke & Marmon Co. has placed on the market a brand new six-cylinder \$2,750 car which marks a distinct era in motor car engineering. It is the first car with an aluminum cylinder casting to be placed regularly on the market.

The outstanding feature of the new six is that it is 1,000 lbs. lighter than others in its class, the seven-passenger tipping the scales at 3,500 lbs. when equipped with a luxurious body and with all tanks full. It will accelerate from 10 to 50 m. p. h. in less than 18 sec. and has a maximum speed of 60 to 70 m. p. h. The extreme lightness has been secured by innovations in design and by the extensive use of aluminum and high tensile steel.

Cylinders are cast in block with a detachable head and all the valves are located in the head, but the camshaft is in the customary position. The valves themselves are 1 $\frac{1}{4}$ in. clear diameter with a lift of $\frac{3}{8}$ in. and the engine develops over 70 horsepower at 2,500 r. p. m. Thus the motor is not only a large six but a six of high efficiency.

On the score of vibration the ever-present tendency to crankshaft deformation in a six has been countered by the use of a 2 $\frac{1}{4}$ -in. crankshaft with four main bearings; there is not detectable vibration at any speed between 3 and 65 m. p. h. Quietness has been attained to a high degree, the complete inclosure of the overhead valves eliminating sound from the tappets more effectively than is the case on most motors of normal design.

Nor is this motor geared very low on high gear in order to give the remarkable ability which the car exhibits since the ratio is 3.69 to 1 with 34-in. tires, giving a crankshaft speed of 1,095 r. p.

MARMON SPECIFICATIONS

Price—

Touring, 7-pass.....\$2,750
Roadster, 2- or 3-pass..... 2,700

Make of motor.....Marmon
Number of cylinders.....Six
Shape.....I-head
How cast.....Block
Bore.....3 $\frac{3}{4}$
Stroke.....5 $\frac{1}{8}$
S. A. E. rating.....33.7
Magneto.....Bosch
Carbureter.....Stromberg
Starting-lighting.....Bosch
Clutch.....Cone
Gearset.....Three-speed
Wheelbase.....136
Tires.....34 x 4 $\frac{1}{2}$
Wheels.....Wire
Steering.....Left
Control.....Center
Make of axles.....Marmon
Type rear axle.....Marmon

m. at 30 m. p. h. Into the aluminum cylinder block thin iron sleeves are pressed after machining is completed, in order to provide a working surface for the pistons, which are also aluminum alloy made by the permanent mold process. At present the head casting which carries the valves is iron, but it is hoped to be able to make this also in aluminum with iron valve seats when the supply of castings becomes a little more plentiful.

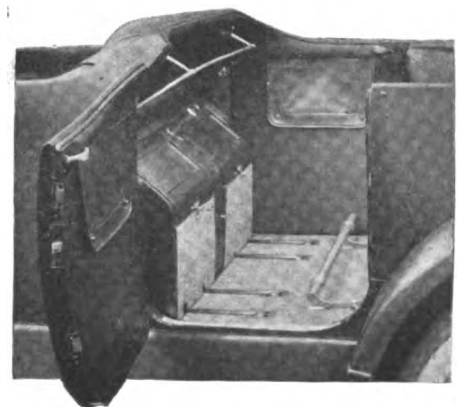
Lightness in the power plant does not depend solely upon the utilization of aluminum, however, since simplification of design also plays its part. For instance, there are but three timing gears, a pinion on the crankshaft and one for the generator and magneto drive with the

large camshaft gear intermediate. The water pump is ingeniously made up on the front end of the crankshaft, the material being aluminum, and the packing glands of very large size and very easy to tighten.

In the valve gear, lightness is obtained in every detail. Tappets are die-cast with large bearing surface and a minimum of material for the size, the long push rods which connect with the rockers are aluminum alloy with steel ends, the rockers are highly finished forgings of alloy steel and the valves themselves are light for their size.

A point which doubtless assists quiet operation is that the push rods are enclosed entirely, and adjustment is provided on the rocker ends. The ends of the push rods are hemispherical and fit in sockets in little screwed set pins which are locked by split, conical seated nuts; the adjustment is rapid and delicate, while the locking is absolutely secure.

One reason that the overhead valve motor has not been more popular is the



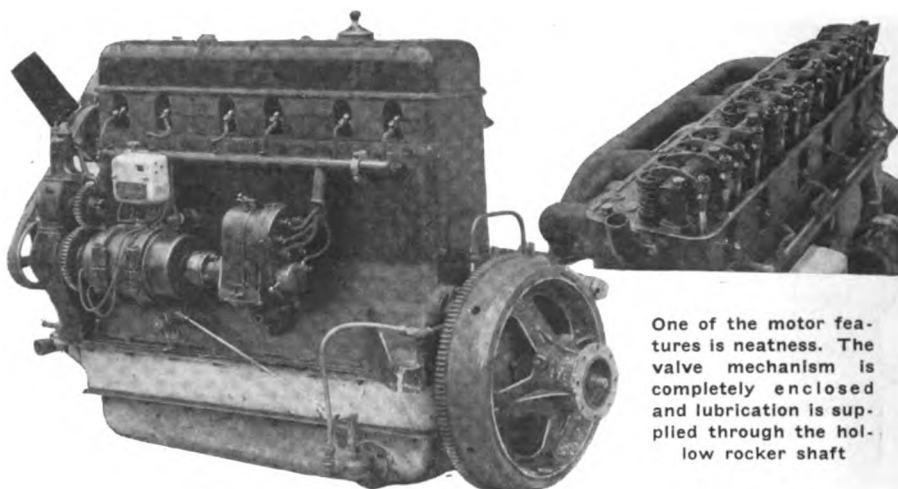
Tonneau showing baggage compartment and how auxiliary seats are disposed of

difficulty in lubricating the parts properly. In the Marmon this is cared for by making the rocker shaft hollow, and pumping oil to it, whence it escapes through the bearings and returns to the crankcase. Each little set screw which bears on the upper end of the push rod is hollow, and oil spray keeps it filled, so maintaining lubrication at this point, while overflow passes down the rod and cares for the lower end. Altogether the valve system is lubricated much more efficiently than is usual on L-head motors and the precautions for draining the surplus are such that there is no possibility of oil seeping down the valve stems and so reaching the combustion chamber.

The main oil supply is controlled in an unusual way. On the rear end of the camshaft is the gear type pump, partly contained within the crankcase casting, and this sends oil to the four main bearings of the crankshaft, thence through drilled holes to the lower connecting rod ends and thence by spray to the cylinders and wristpins.

It has been explained that oil is fed to the hollow rocker shaft, but this is not sent up under full pressure. At the center of the main oil lead, which is cast in the crankcase, there is a vertical stand-pipe at the top of which is the pressure release valve, and it is through this release valve that oil goes to the rocker shaft. Also, besides the other oil feeds, the tappets are contained within a chamber separate from the crankcase proper and this is kept filled with oil so the cams and the tappets operate beneath the surface of a tankful of lubricant.

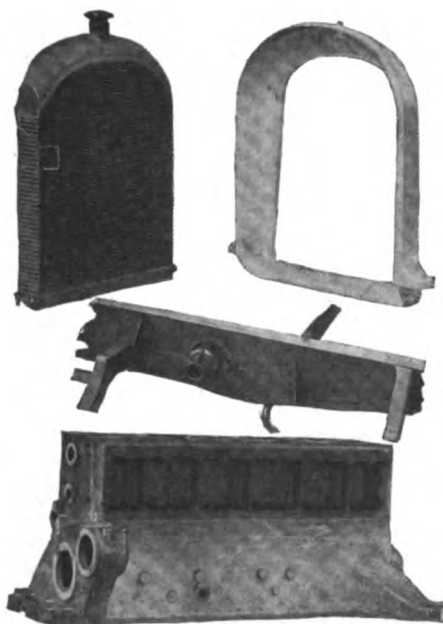
Again, the oil supply is regulated in proportion with the work done; when the throttle is wide open the pump receives a full supply and delivers full pressure, but when the throttle is closed a constriction is put upon the suction intake of the pump and the supply thereby cut down. The device is a simple tap of large dimensions, and it is so arranged that no maladjustment can shut off the supply entirely; the tap is a loose enough fit to permit the passage of a great enough supply to feed the engine adequately when idling. The effect of the control is greatly to economize oil and to reduce the tendency to carbonize, already greatly reduced by the extremely



One of the motor features is neatness. The valve mechanism is completely enclosed and lubrication is supplied through the hollow rocker shaft

efficient cooling furnished by the aluminum pistons and cylinders.

The engine is one of the most accessible ever built. An easily removable



These parts show why the Marmon is lighter. The radiator shield is cast aluminum and so is the cylinder block. In the center is shown a detail of the frame where the steering shaft goes through

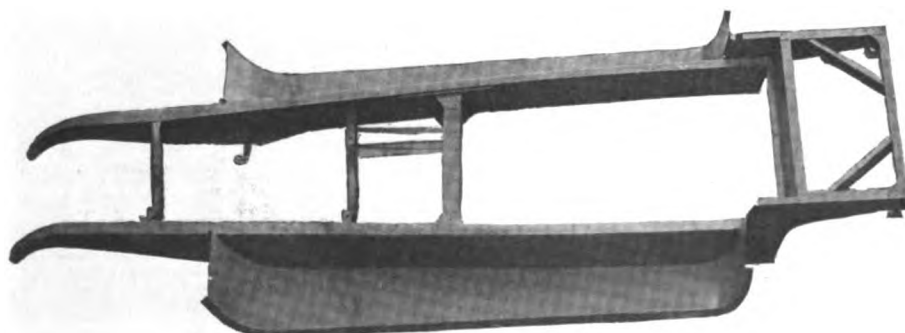
cover lays bare the valves in a moment, the Stromberg carbureter stands high on the right side, the Bosch generator and magneto equally high on the left. The

glands of the water pump can be reached without effort, the oil pump and the oil throttle are both removable without disturbing any other parts. The spark plugs stand in the side of the head casting and have wires only a few inches in length, while all but three of the lighting equipment wires are centralized in the control box, which is mounted upon the generator. The oil filler is in the extreme top of the cylinder block and the level gauge is a quadrant situated horizontally just beside the carbureter. Carbureter accessibility and the accessibility of the starting motor is enhanced by bringing the exhaust manifold down at the front end of the motor, and this also keeps the heat away from the driver's compartment.

In section the frame sills are narrow, and of thin stock, but the depth is 10 in. and use is made of the steel running boards to provide much of the strength. The main side pieces end with the running board, which is upswept at this point, so forming the front end of the mudguard, and the end of the body is supported by a separate portion riveted to the principal side pieces. Across this is a deep cross member which makes the tonneau heel board; so the rear end of the body consists of nothing more than the back and sides of the seat. Although of such thin steel, the frame has its various parts so proportioned that the dead metal is reduced to a minimum, and it is thus stronger than usual as well as lighter.

Next, the body becomes light by virtue of the frame construction, as there are but three pieces, the cowl, the front seat and the rear seat. These are of sheet aluminum on light wood frames and carry the doors, which are remarkably free from shake owing to the immense rigidity of the very deep frame section. Thus properly speaking there is no separate body; both body and chassis are a unit and reduplication of strain bearing parts is thus eliminated.

The gearset is located on the forward end of a long torque tube, so forming a unit with the rear axle, and the clutch connects to the gear shaft by a universal



Complete frame assembly showing how the running board is utilized as part of the frame section

joint, the only universal on the car. The clutch is a fabric cone with aluminum center, the flywheel having cushion spring inserts.

To suspend the end of the torque tube so that the rear axle shall have freedom of movement in all directions, there is a very large ball and socket joint, the ball being secured to the gearbox and the socket to the frame. Then, to connect the gear shaft to the clutch is a short shaft with a universal at the rear end and a universal coupling at the front end. The latter consists of a gear wheel with rounded teeth, set into an internal tooth gear which is part of the clutch. The centers of the ball support and the universal are as nearly as possible the same, so very little motion is put on the front end coupling.

In the center of the short clutch shaft are three collars like the thrust collars of a marine propeller shaft, and enclosing these is a casing which is oil retaining and forms the medium for clutch withdrawal, the lower end of the pedal linkage pressing on this case. The plain thrust collars provide a natural amount of friction for the purpose of braking the clutch, but not so much as to interfere with the ease of changing down from a high to a lower gear. A quick change down and a leisurely change up can be performed with equal ease.

In designing the gearset, which provides three speeds, the aim has been to

obtain the greatest possible degree of quietness, hence the countershaft is stationary and the gears revolve upon it on plain bushings. For the main shaft Hyatt roller bearings are employed with a Hyatt spigot bearing and a single ball bearing to support the front end of the constant mesh pinion and care for thrusts. The driveshaft is tubular and contained within a drawn steel tube, having a casing at the front end to which the gearbox is bolted. Within this case is a skew gear drive for the speedometer and a disconnecting coupling which joins the driveshaft and the gearshaft. Also on this case are the ends of a pair of rods which run to the outer ends of the axle, for the purpose of triangulating and stiffening the unit. In connection with these rods is a petty detail which is typical of the care and thought displayed throughout the car, for the yoke pins which secure the rod ends to the axle and to the gearbox are taper, and fit in taper sockets, so that when driven in with a tap from a hammer all slack is taken up.

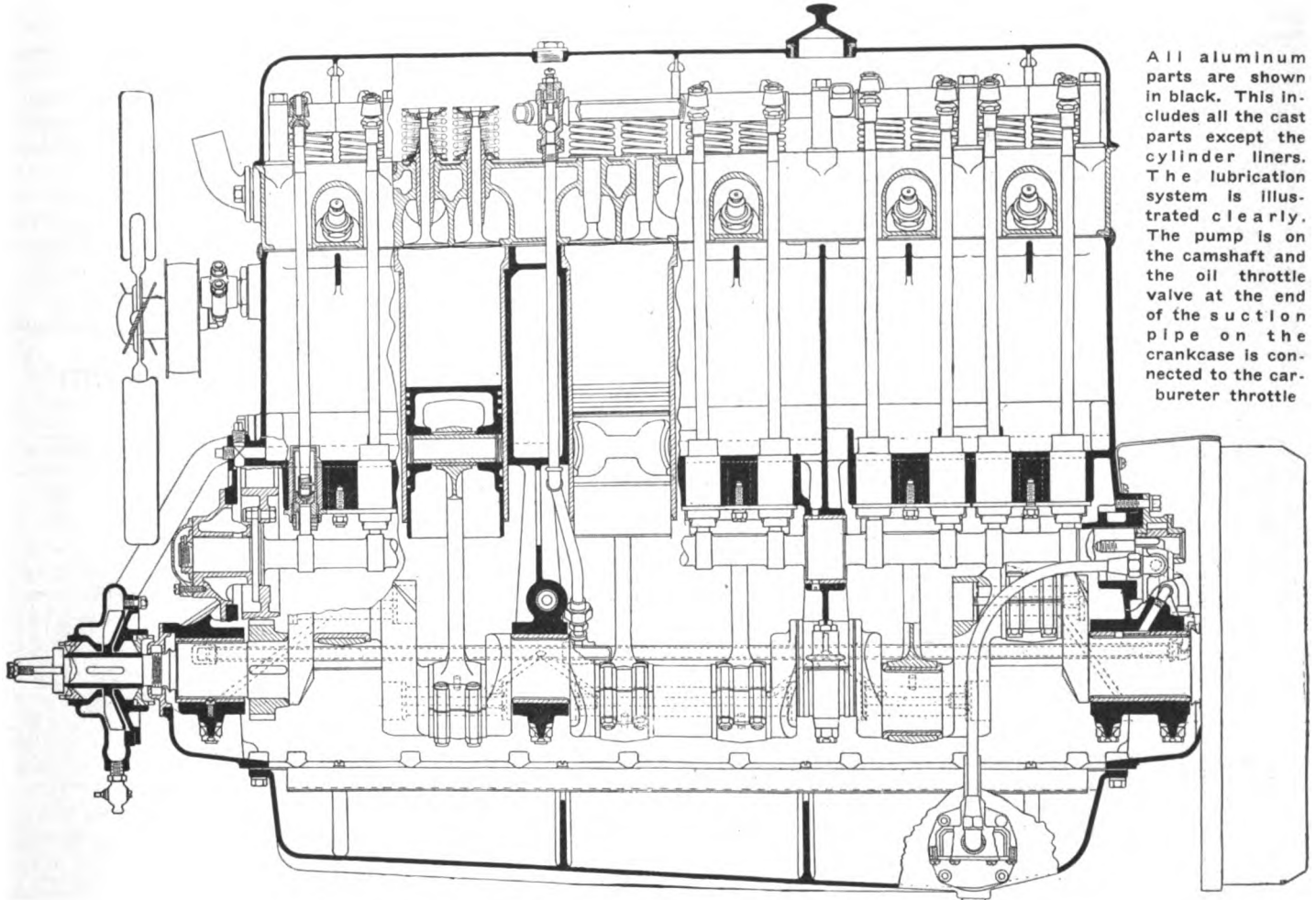
The rear axle contains one of the finest examples of cold drawn steel work ever found in a motor car, the tubes being each made from a single billet of steel in the Prest-O-Lite plant at Indianapolis. The center case is an aluminum alloy casting and carries everything connected with the gears. Located at the geometric center of the spiral bevels is

a double row ball bearing and, being in this position, it supports all driving stresses. The other end of the differential carrier, behind the ring gear, thus requires only a steady bearing, and this consists of a large Hyatt roller set in a conical socket which takes its own natural place in the conical steel tube. The driveshafts are secured to the hubs and can be withdrawn from the differential, while the wheels are mounted on large, single row ball bearings.

To carry these bearings a piece of steel is turned, socketed into the end of each conical tube, and then riveted in place. There are no castings or forgings to hold the brake cams; instead, dished steel pressings are used, also riveted to the main tubes, and having attached to them the necessary small bushings to carry the brake operating shafts. The brakes themselves are conventional, 17½ in. diameter and 2 in. wide.

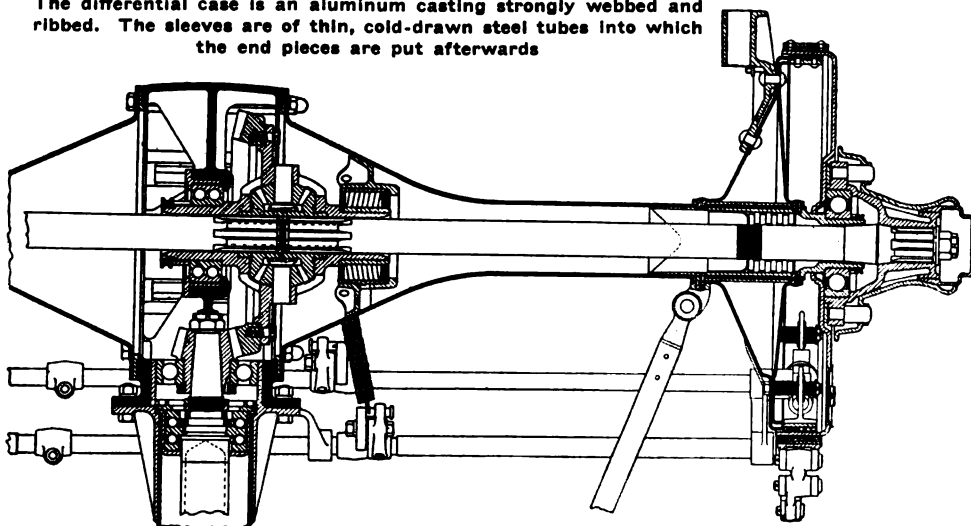
The front axle is attached through semi-elliptic springs which have no abnormality save that some reversed leaves are placed on top, this making the spring much easier in action and taking out harshness. It has the effect of a shock absorber. At the rear the springs are unconventional, there being two of semi-elliptic form set transversely one above the other and back to back.

On the right side the springs are attached to simple pins on the axle and



All aluminum parts are shown in black. This includes all the cast parts except the cylinder liners. The lubrication system is illustrated clearly. The pump is on the camshaft and the oil throttle valve at the end of the suction pipe on the crankcase is connected to the carburetor throttle.

The differential case is an aluminum casting strongly webbed and ribbed. The sleeves are of thin, cold-drawn steel tubes into which the end pieces are put afterwards



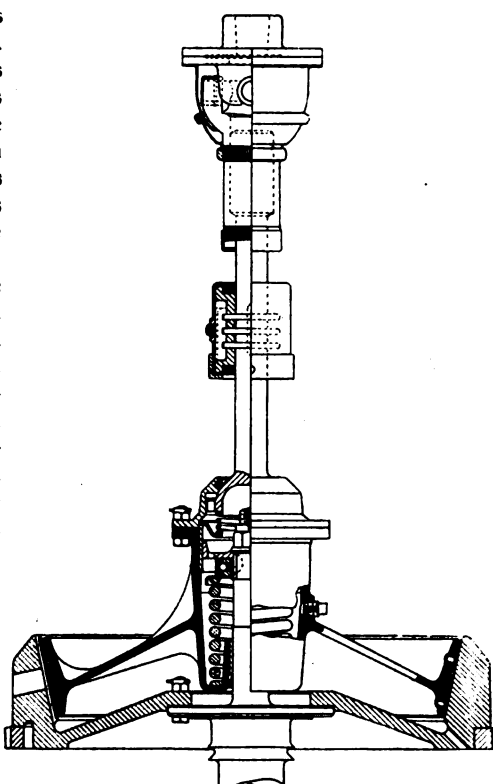
frame respectively, while each spring is shackled at the other end. Taking a bump which is equal on both wheels both springs operate together, and as they compress they come more and more into contact with the wood, which spreads the width of support and, by thus effectively shortening the spring, stiffens it in proportion to the violence of the shock.

The construction of the front axle swivel is absolutely waterproof and oil retaining. The swivel axle is shaped like an inverted L and the downward projecting vertical part has three integral collars turned upon it. A split bronze bushing, turned to fit the collars, is then put on the spindle and pushed into the bored end of the axle forging; a large cap, something like a hub cap, is then screwed on the bottom of the split bush and locked firmly to the axle, so the swivel pin thus stands in a cylindrical container with no opening save a narrow crack at the top. This is closed by a protecting washer and the pin is drilled to hold oil which is put in through a plug in the extreme top. Since the oil cannot escape it requires replenishment at long intervals only, and the three collars provide a thrust bearing of so large an area that the pressure per square inch is low and movement consequently easy.

The body, the construction of which has already been described, has a unique feature in that the upholstery is all detachable, being made up in separate units, so in an hour a complete change in upholstery can be made. The finish is of even better class than that hitherto provided on Marmon cars and the very high sides give extreme comfort.

New Briscoe Four for \$585

A light-weight four-cylinder car selling for \$585 has been added by the Briscoe Motor Co., Jackson, Mich. It has $3\frac{3}{4} \times 5\frac{1}{2}$ block motor with thermosyphon cooling and constant level splash lubrication. Two- and five-passenger

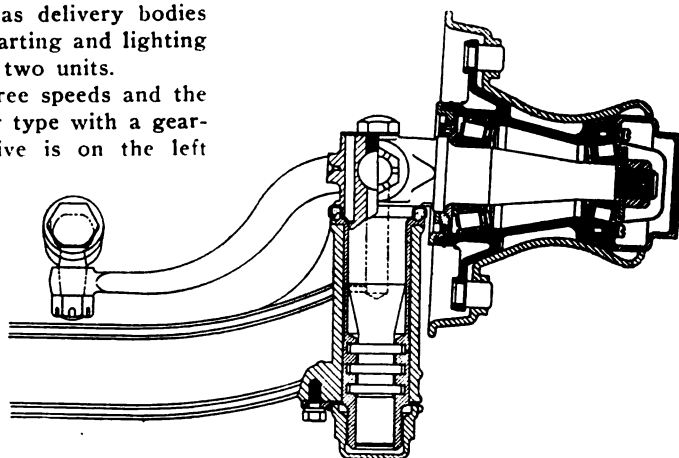


The clutch is an aluminum cone with spring cushion inserts in the flywheel rim. One of these appears at the left. In the center of the shaft are the withdrawal collars which also act as a brake

open bodies as well as delivery bodies will be furnished. Starting and lighting equipment will be in two units.

The gearset has three speeds and the rear axle is a floating type with a gearless differential. Drive is on the left

The front axle swivel is waterproof and oil-tight. The load is carried by the three collars which move with little friction because they are well-oiled



with center control. Internal and external brakes 10 in. in diameter act on the rear drums. Tires are $30 \times 3\frac{1}{2}$ in. all around and are equipped with demountable rims. Equipment includes one-man top with rain-vision curtains, clear-vision windshield, electric headlights and dimmer, combination tail light and license bracket, electric horn, tools and kit.

Koehler 1-ton Delivery, \$985

A single chassis with a capacity of 1 ton and selling for \$895 will be produced by the H. J. Koehler S. G. Co., Newark, N. J., for 1916. The motor is a four-cylinder and drive is by shaft. A roomy flare-board body complete with top and side curtains is mounted on the chassis which has a wheelbase of 129 in. The space back of the driver's seat is $8\frac{1}{2}$ ft.

A block-cast motor with valves in the head is combined with a three-speed gearset mounted on annular ball bearings and cone clutch to form a unit power plant suspended on three points. Bore and stroke are $3\frac{1}{2} \times 5$ and the rating is 30 horsepower. The valves are carried in a detachable cylinder head. Lubrication is force-feed with a gear pump in the crankcase reservoir supplying oil to all working parts from which it drains back to the sump. The crankshaft is mounted on three 2-in. bearings. Crankshaft and connecting rod bearings are of the bronze shell type, lined with nickel babbitt.

The radiator is made up of three sections, there being tanks at the top and bottom connecting with the vertical tubes. A feature is the spring suspension in which leaves of four different thicknesses are used.

The internal gear type of drive is employed, all working parts of which are mounted on heavy duty roller bearings. The wheels are 34 in. in diameter. Drive is at the left with center control.

Simplified System

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BE-BE-CO. DRESSINGS

Boston Blacking Co., East Cambridge, Mass. Dealers, 33 per cent.

A complete line of dressings and polishes are offered for automobile use. Mohair Top Dressing is for mohair fabrics and will give a dark, silky lustre to faded mohair. PRICE, pts., 65 cents; qts., \$1. Leather dressing is for rejuvenating worn leather without leaving the impression that the leather has been painted. PRICE, pts., 65 cents; qts., \$1. Metal and body finish is for adding lustre and covering scratches in all painted and varnished surfaces. PRICE, ½ pts., 50 cents. Brass and nickel polish is claimed to be economical and require little effort to obtain results. PRICE, pts., 50 cents. Top lining dye removes the stains and streaks in the top lining. PRICE, qts., \$1; pts., 50 cents. The seat and slip cover cleaner is for removing dirt and grease from these fabrics; it is applied with a stiff brush. PRICE, qts., 75 cents; pts., 45 cents. The body polish is for giving the body a high shine and will not collect dust. PRICE, ½ pts., 50 cents. Other products include: Hand cleaner, ½ lbs., 10 cents; tire paint, red, white and gray, qts., \$1, and pts., 65 cents; motor car soap, 5 lbs., 80 cents, and 10 lbs., \$1.50.

PEE-GEE PAINT FOR FORDS

Peaslee-Gaulbert Co., Louisville, Ky. PRICE, \$3.

The outfit consists of 1 qt. of flat black, 1 qt. of top black, 1 pt. of top dressing, coarse and fine sandpaper, and a 2-in. brush.

MIDGET BOYCE MOTO-METER

The Motometer Co., 1790 Broadway, New York. PRICE, \$2.50. DEALERS, 33½ per cent; jobbers, 40 per cent.

The new Moto-Meter is the same as the larger model except that there is no glass over the thermometer and the size of the dial has been reduced from 3½ to 2½ in. It is designed for radiator cap mounting in a 7/16-in. hole.

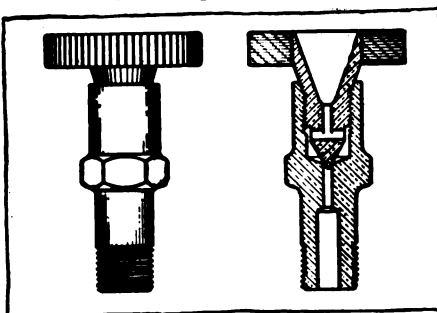
FRUNT-SEET ROBE

Automobile Apparel Co., Port Chester, N. Y.

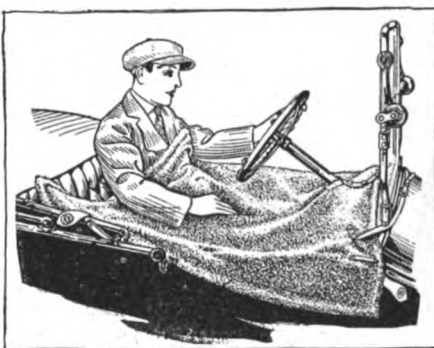
The robe fastens to the side of the body and to the dash and thus keeps the driver warm. A special flap allows it to fit around the steering post. It is



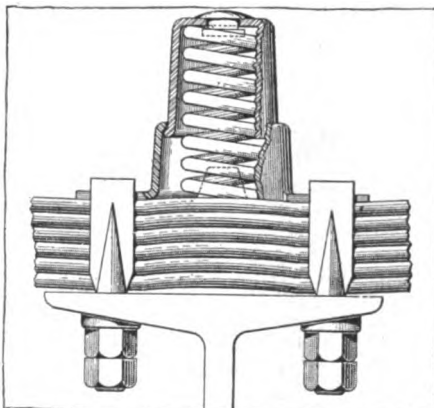
Boyce Midget Moto-Meter



Needle valve priming cup



Frunt-Seet robe for driver's protection



Pamco auxiliary spring bumper

made in sizes to fit all cars and comes in black or green plush, cloth-lined, and is reversible to fit right or left drive. PRICE, \$6.50; rubber, cloth-lined, \$5; rubber, khaki-lined, \$4.50. Special sizes for Fords finishes as above, \$5, \$4.25, and \$3.75, respectively. Special suits for motorists, known as Coverall, are made. They are to protect the clothing and are in one piece. Olive and tan khaki are offered. PRICE, \$2.25, \$2.75 and \$3.25.

NEEDLE VALVE PRIMING CUP

Ideal Brass Works, Indianapolis. PRICE, nickel, 50 cents, brass, 40 cents.

The most important feature of this cup is that the valve itself is of the needle type and is proof against leakage even when used on high-compression motors. The turning knob is a fiber disk so that there is no danger of burning the fingers.

PAMCO SPRING BUMPER

Auto Devices Co. 3027 Locust street. St. Louis. PRICE, per pair, \$1.

Instead of using rubber bumpers to prevent the springs from striking the frame, a coil spring housed in a telescopic case is used. The bumper is attached by loosening the spring clips and then putting the bumper flanges underneath. It is made in two sizes, for cars under and over 2,500 lbs.

TOP COVERING FOR FORDS

Cray Bros., Cleveland. PRICE, dealers, \$7.50; \$79.50 per dozen.

A top covering ready to attach to any Ford is made of a rubber composition. It takes the place of the old top when it is worn and leaky.

K. P. FOOT-REST HEATER

K. P. Foot Rest Heater Co., 250 W. 54th street, New York. PRICE, \$25.

A tubular foot-rest through which exhaust gas passes, entering at one end and exhausting from the other. Inadvertently, a description and illustration of this device was omitted from the Dec. 22 issue of Motor World but will be included in the heater section of the January 12 issue.

Simplified System

Page 10

NON-SKID TRUCK TIRE

Modern Railway Appliance Co., Albany, N. Y.

Better traction is said to be obtained by the use of cylindrical rubber blocks held in place by steel forgings. The latter have the same resiliency as the former since they are cushioned with rubber. After the rubber becomes worn the bolts holding the blocks are loosened and the rubber blocks are turned, giving a new wearing surface. In this way the blocks can be used several times. A 30,000-mile guarantee is given.

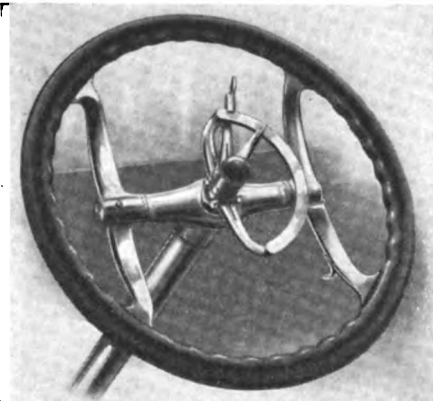


Non-skid truck tire made by the Modern Railway Appliance Co.

WARM HAND STEERING WHEEL

Pouvailsmith Corp., Poughkeepsie, N. Y.

As now manufactured, the Warm Hand wheel consists of a wooden core with the heating coil wound spirally around it and over this condensite is cast under a pressure of 120 tons. All wiring is concealed, coming up the steering column between the rod and casing.



Warm Hand steering wheel which may be tilted

while an ingenious brush contact replaces the ordinary bushing at the top of the steering column, insuring constant electrical connection and preventing any twisting of the wires. Two quadrants of the wheel are heated—where the hands naturally fall on the rim in steering. A simple push switch is used to throw the current on and off, the red end of the button switching it on while the black turns it off.

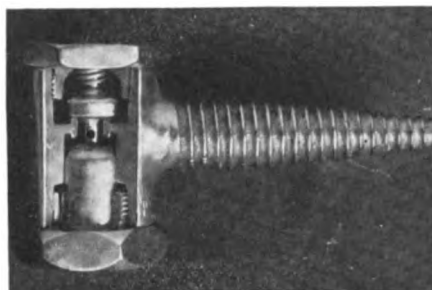
The current consumed is stated to be negligible and the device is made for cars with electrical systems of any voltage. The Warm Hand wheels, as well as the ordinary types manufactured by the corporation, are furnished in folding form if desired. The folding wheels pivot on the diametrical crossbar, being firmly locked in place except when folded. A trigger-type lock operated by the forefinger renders manipulation easy. A button switch is provided for operating the horn. The 18-in. Warm Hand steering wheel, model G, sells for \$15, and the folding design, model H, for \$20.



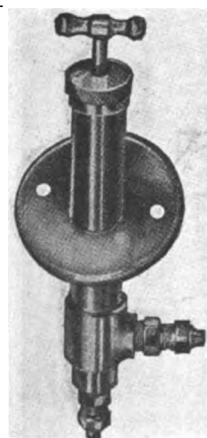
The Auto-Rad, an exhaust heater for Fords



Section of Warm Hand Wheel showing heating coil imbedded in condensite



Service automatic air chuck



Ideal dashboard primer. A small plunger pump with pipes to tank and manifold

HANSEN AIR CHUCKS

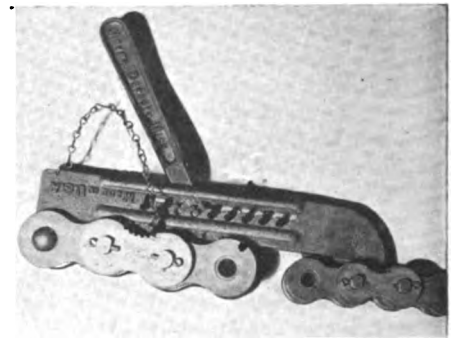
Hansen Mfg. Co., 1223 Illuminating building, Cleveland.

The Service chuck provides an automatic connection between air hose and valve stem and is provided with mushroom valve which is opened by the valve stem and which closes as soon as the chuck is removed from it. PRICE, \$3. The Hansen hose connection is designed for small garages and use on portable tanks. It grips the valve stem by a soft rubber sleeve which prevents leakage. PRICE, 80 cents. The same connection may be had with a pressure gauge and by pressing down on the gauge the exact pressure may be read. PRICE, \$2.

MEYER DRIVING CHAIN TOOL

Henry T. C. Meyer, Detroit. PRICE, \$2 and \$3.

This is a tool for drawing the links of a chain together. It works somewhat on the principle of the ordinary lifting jack. The head of the tool terminates in a hook that is placed behind the first link and there is also a hook on the end of the lever, this catching the other end



Meyer driving chain tool

of the chain. Thus the slack in the chain is drawn up by the lever being moved forward from notch to notch in the main part of the connector.

AUTO-RAD FOR FORDS

Brevando Mfg. Co., Rochester, N. Y. PRICE, \$6.

The heater utilizes part of the exhaust which passes through a radiator placed under the front of the rear seat. It is enclosed in a sheet steel housing which is provided with holes to allow for circulation of air. A valve within easy reach controls the heat.

IDEAL DASH BOARD PRIMER

Ideal Brass Works, Indianapolis. PRICE, \$3.

This primer is a small gasoline pump installed on the dash or cowl. Its suction end is connected to the fuel tank and its discharge end to the manifold so that the motor may be primed by simply operating the handle. The stem of the handle is threaded so that the pump valve may be closed tightly by turning it a few times.

Dealer's Legal Status

Mechanic Who Drives a Car May or May Not Require a
Chauffeur's License, But It Is Safest to Have One—
Paid Drivers Must Be Licensed

By George F. Kaiser

A RECENT inquiry addressed to me by a motor car repair company in Brooklyn, N. Y., was whether or not it is necessary for a mechanic to be in possession of a chauffeur's license before he can test on the city streets and demonstrate cars which are being repaired by his employer.

On investigation I found that there were no reported opinions on this point, but several magistrates in New York city are said to have fined mechanics who were arrested while driving cars without a license.

In the New York Motor Vehicle Law the term "chauffeur" is defined as: "Any person operating or driving a motor vehicle as an employee or for hire." Under this class many magistrates would feel justified in fining mechanics arrested while demonstrating or testing cars, as, while their principal duty is that of repairing cars and not operating them, they still are employees and are being paid for their services, which may consist in part in operating such cars as are repaired by them.

Just a few days ago a taxicab owner who operated his own car was arrested and fined in the Magistrate's Court of New York city for not having a chauffeur's license. The magistrate proceeded on the theory that, as he was renting out his car and hiring out himself with the car, he was an employee of the various passengers who hired him and should, therefore, have been licensed.

Pitfalls of Partnerships That Must Be Watched This Man Didn't Know What He Was Getting Into

The costly consequences of allowing oneself to become known as a partner were again clearly shown in a recent case.

A dealer who had a nice business and a good credit rating was approached with a manufacturing proposition which looked very good to him. It was explained to him that the article which was to be manufactured could be turned out at very little cost, that the profits on it were large, and that it could be readily sold on the market. The only

thing the dealer was to do was put up a small sum of money to start the ball rolling.

After thinking the matter over for some time the dealer decided to take the chance, as the sum he was required to invest was such a small one. He accordingly turned over his check to the friend, in whom he had considerable confidence.

To make a long story short, the project failed and the dealer lost the money he had put into the business. With surprise and consternation, however, he learned a short time thereafter that this was not the limit of his liability, but that he would also have to make good the rent of the shop for the remainder of the lease, to pay for the machinery which was bought on credit, in addition to the amount he had intended to "take a chance with."

One Case Where Suit Must Be Started Now A Check Was Returned and Only a Suit Will Help Matters

Editor Motor World:

As a reader of your valuable journal and through its columns informed we are entitled to legal information, we beg to ask how to proceed to collect a bill from a party who gave us a check for \$93.30 and which was protested "Not Sufficient Funds." We have been trying to get this party in our county since September, 1914, but have been unable to do so. Your advice as to our chance of getting same and how to proceed will be greatly appreciated.

Tamaqua Auto Garage & Repair Co.,
Tamaqua, Pa.

As your letter infers that this check was not certified, the only party you can proceed against is the maker of the check and the endorsers, if there are any. Of course, if the check had been certified, you would be able to proceed against the bank, if it had not held back sufficient funds to pay the check in full. This, then, is an excellent time to resolve never to accept any other than certified checks unless the party is known to you to be of absolutely sound financial standing.

With regard to your rights at the

present time, the only thing you can do is start suit on the check. If the maker of the check is not within your county at the present time, he, of course, can be sued in the county where he is. The only thing you can do is take this matter up with your local attorney and instruct him to start suit, if, after investigation, he concludes that the maker of the check is good for a judgment. You cannot do anything without the services of an attorney, so you may as well consult one at once. If it is necessary to start suit out of town, suit will be started by one of his various correspondents and your interests will be preserved.

MAY HAVE TO RETURN INSTALLMENT MONEY

That a garage which will "retake" a motor car which was sold on a conditional bill of sale, without strictly complying with the law, may have to refund as much of the purchase price as it has received, was decided in a recent New York case.

Suit was brought for the sum of \$1,349.80 against a garage company by a man who had bought a motor truck from it. He claimed that while the truck was in the custody of the garage he had demanded that it be turned over to him so that he could use it in his business, but that his demand was refused and that the garage company rented out the truck by the day and received the money which was paid as rent for it.

The court allowed the recovery of damages against the garage on the ground that the New York Personal Property Law provides that when articles are sold on a conditional bill of sale they must be kept for 30 days after they are retaken, during which time they can be redeemed and then must be sold within 30 days from the expiration of that period.

As the garage had not complied with this statute, it was compelled to refund that part of the purchase price which it had received. (P. F. Lugheber vs. Universal Motor Truck Co., 155 N. Y. S. 292.)

WHO STANDS THE LOSS?

The question of who must stand the loss—dealer or customer—when a salesman collects money and appropriates it to his own use comes up frequently.

In a case like this there is a simple rule by which the respective rights of parties may be governed. If the employer was in the habit of allowing the salesman to collect money for him, and if the customer knew of this, the employer will have to stand the loss. If, on the other hand, the salesman had no authority to collect money on behalf of his employer, and the customer had not paid money to him before, or had paid his bills direct to the dealer, the customer will have to pay the bill again.

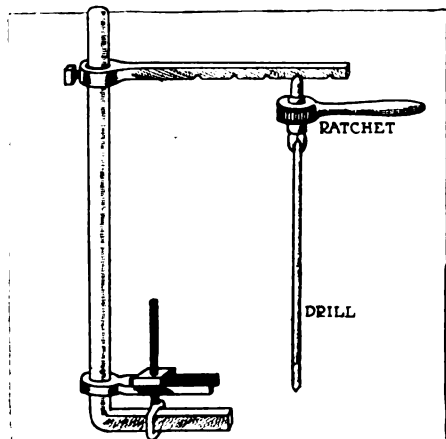
REPAIRSHOP SHORT-CUTS

From the **MOTOR WORLD** *Road Man*

Old Man for Drilling

(No. 413)

A ratchet stand or old man will be found useful in drilling parts that cannot be placed on the drill press. The main piece of the stand is $1\frac{1}{2}$ in. in diameter and about 2 ft. long. It is bent over at one end to form one part of the clamp. A sliding member of $1\frac{1}{4}$ in. square section is mounted on the main member. The former supports the ratchet and is provided with several countersunk holes on its under side to accommodate the point of the ratchet. The clamp at the lower end allows the device to be attached to fender, or frame, or almost anywhere.—J. Baldwin, New Harmony, Ind.



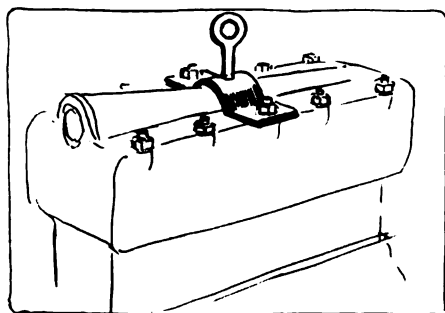
(No. 413)

Old man for drilling parts where drill press is unavailable

Ford Motor Lifter

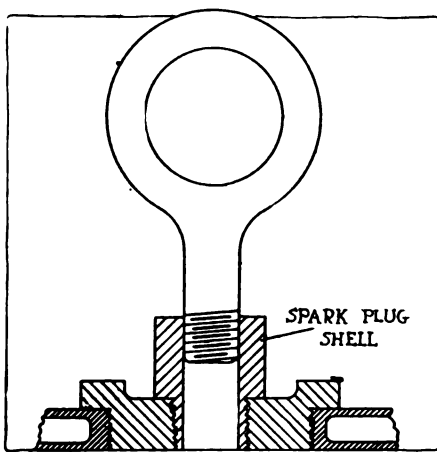
(No. 414)

For lifting Ford motors a plate with an eye-bolt in its center may be attached to the top of the casting using the regular cylinder head bolts to hold the plate in place. The plate is drilled at each end and before it can be attached the two bolts must be removed.—C. R. Hill, J. E. Dougan Auto Co., Iowa Falls, Ia.



(No. 414)

Simple device to be used in lifting Ford motor



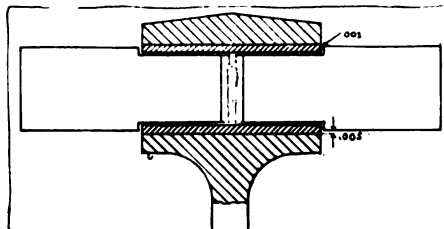
(No. 415)

Lifting eye attached to spark plug shell and screwed in spark plug opening

Spark Plug Motor Lifter

(No. 415)

An old spark plug shell with a large eye fastened to it either by threading or welding makes an excellent device for lifting a motor. The tool is screwed into any spark plug hole and then the crane hook is attached.—J. P. Kitselman, Peoria, Ill.



(No. 416)

Mandrels for closing wristpin bearings

Wristpin Adjustment

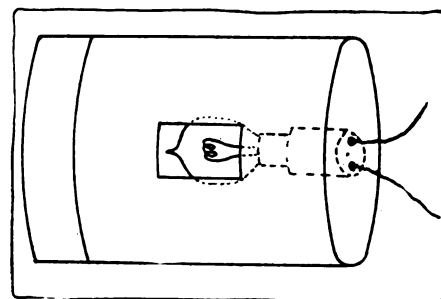
(No. 416)

When the wristpin bearing is in the connecting rod it may be tightened in a very simple manner. A mandrel is placed in each end, each with a slight shoulder. The clearance of the mandrels should be .005 and their outside diameter should be .005 in. less than the outside diameter of the bushing. By resting one of the mandrels on an anvil and hammering the other, the bearing may be reduced in size until the clearance space between mandrel and hole is all taken up. The hole may then be reamed to the size of the wristpin. Care should be taken to close up the bushing sufficiently to permit the reamer to cut a new bearing surface all over.—Paul L. Argo, Chandler Sales & Service Co., Nashville, Tenn.

Unbreakable Test Lamp

(No. 417)

A test lamp which may safely be carried in the tool kit is made from an ordinary 6-volt bulb mounted in a baking powder can. The lamp bulb base is soldered to the bottom of the can and the wires run through. When not in use the wires may be carried in the can, there being a rectangular hole in the side so that they can be inserted without disturbing the cover.—A. S. Stewart, Cuppet Bros. Garage, Clarksburg, W. Va.



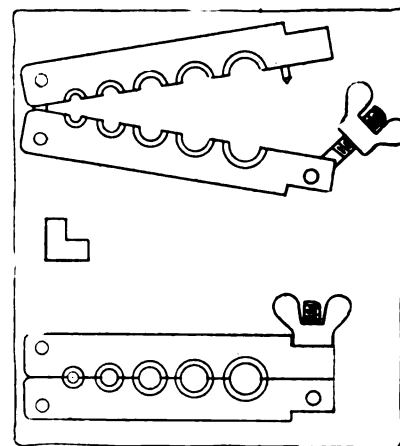
(No. 417)

Small test lamp mounted in baking powder can for protection

Flanging Brass Tubing

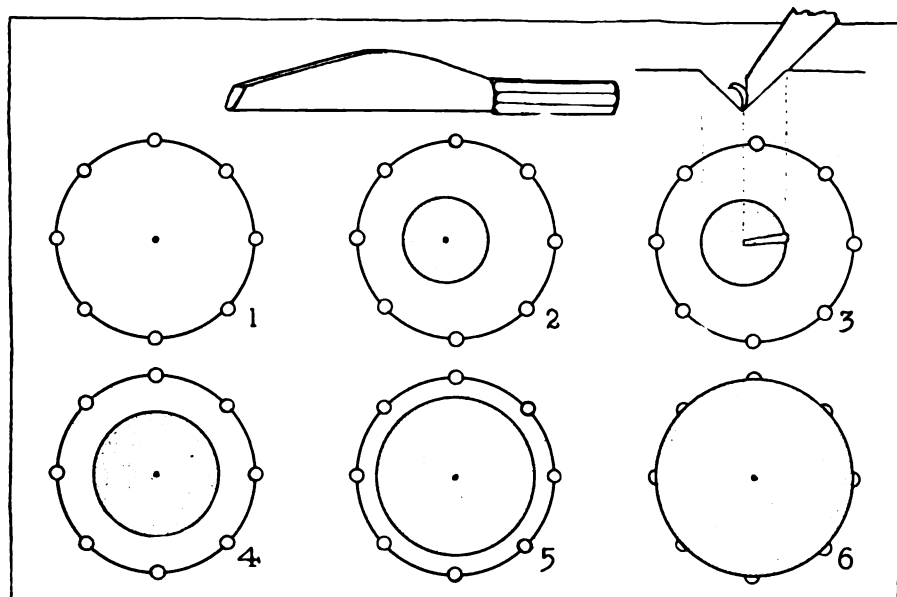
(No. 418)

The flanging of copper or brass tubing for union connections may readily be done providing a die, such as the one shown, is made. The die consists of two pieces of steel, hinged at one end and fastened by a wing nut at the other. A series of holes for different sizes of tubing from $\frac{1}{8}$ to $\frac{3}{8}$ in. are drilled, half in one piece and half in the other. The edges of these holes are rounded off on one side to conform to the shape of the flanges desired.—M. Gerard, Cissna Park, Ill.



(No. 418)

Die for flanging brass tubing



(No. 419)

Drilling a hole true—1 shows the hole laid out with punch marks on the diameter. In 2 the gray portion indicates the starting of the hole. 3 shows how the groove is cut, and 4, 5 and 6 show the completion of the hole

Drilling a Hole Dead True

(No. 419)

DRILLING a hole "dead true"—that is, precisely in the place where it ought to be—is not quite as simple and easy as it might seem. It might be supposed that if the exact center of the hole were located, a good deep center-pop made with a center-punch, and the point of the drill started in the center-pop, the rest of the drilling operation would consist of feeding down the drill. The fact is, however, that in a majority of cases the drill will not hold a true course. It will work away from the center laid out for it, and the larger the drill the greater the error is likely to be.

The tendency to sidle away from the center-pop lasts as long as the cutting edges of the drill are only partly below the surface of the metal; once the cutting edges are buried the drill will run true, if it is a twist drill. If it is a blacksmith-made flat drill or lipped drill it is liable to run off more or less anywhere on its downward path.

If the piece to be drilled has a surface on which scratched marks will not show distinctly, it is rubbed with chalk. The exact center is located and marked carefully with a prick-punch. Using a pair of compasses with hardened points, a circle, the exact size of the hole to be drilled, is described with the prick-punch mark as a center, and on the circle a ring of marks is made with the prick-punch, great care being taken to put the point of the punch exactly on the line each time. This serves to locate the outer edge of the hole with exactness. The center mark may now be enlarged with a bigger punch to take the point of the drill.

The drill is started in the center and allowed to cut for a few revolutions, making a depression perhaps half the diameter of the ring of punch-marks and then is withdrawn. If the edges of the cut are not quite concentric with the prick-punched ring, it is necessary to "draw" the drill.

This is done by cutting a narrow groove down the side of the drill cut that is furthest from the outer ring; the cut is made with a narrow, round-nosed chisel, and must extend from the edge of the drill cut clear to the bottom or center; it must not stop short of the lowest part of the cut.

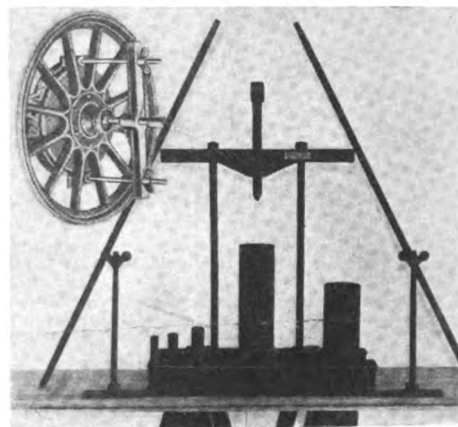
The drill is again allowed to cut and is again withdrawn as soon as the chisel mark has been cut away. If inspection shows that the draw has been sufficient to bring the tool into correct position the drilling may be proceeded with until the cut has almost, but not quite, reached the ring, when another inspection will show whether the drill is still running true. When everything is right the punch-marks in the ring will be cut exactly in two as the cutting edges of the drill sink in.

The earlier the drawing is done the more easily the drill is deflected, and vice versa. Ordinarily the groove cut should be about equal to the distance it is desired to draw the drill. However, only experience can guide the operator from this point, and in this particular detail a good deal of experience can be obtained in a short time. While the process may seem a time-consuming one, it really is put through very rapidly after a little practise.

Puller and Arbor Press

(No. 420)

A combination wheel puller is a useful device that costs little. As a wheel puller the device consists of a cast piece which carries the screw, and two long bolts with ends which slip back of the spokes. Several holes in the cast piece allow for adjustment to wheels and brake drums of different diameters. Only the cast piece and the screw it carries are used in the arbor press. The remainder of the device is made up of



(No. 420)

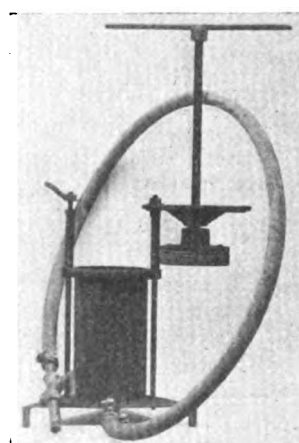
Upper left—Wheel puller. Lower—Complete apparatus

two upright members which are carried in a base made out of two I-beams bolted together.—M. Gerard, Cissna Park, Ill.

Pressure Grease Gun

(No. 421)

A high-speed grease gun with a capacity of 5 lbs. or more is made from a length of sheet tubing 5 in. in diameter. The tubing is mounted on a suitable stand and the pressure is supplied by a screw-operated plunger which is faced with pump leather. The screw is marked off in pound divisions. The discharge end of the gun is supplied with a handle cock and any size nipple from $\frac{1}{8}$ to $\frac{1}{2}$ in. A small cock is placed at the gun end of the outlet to supply air for the return of the piston and for filling small grease cups.—M. Gerard, Cissna Park, Ill.



(No. 421)

Grease gun operated by compressed air—capacity 5 lbs.



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The Motor World Simplified System of Accounting

Instalment No. 6

START 1916 right! Don't work in the dark!

If you are convinced that system is good for your business, why will you do business without system? Answer the question honestly. Give it serious thought. You yourself are to blame for the condition of your business.

Do you want it to be better? Then why don't YOU make it better?

No one is going to do it for you. There aren't many people who love you enough to do it for you, and those who do probably haven't time or don't know enough about business to do it. So, you see, that comes pretty near putting the whole job on your own shoulders.

The sixth instalment of Motor World's Simplified System of Accounting appears this week. Read it! It will benefit you. It may give you a good New Year's thought. Even if you want to use some other system, read these stories.

Get SOME System!

Motor World doesn't care WHAT system you use, whether Motor World's or some other. But get SOME system.

The story this week covers the Sale of Cars. Previous instalments took up other parts of the average business. With these instructions the garageman and dealer should be able to install this system and get it

going January 1. The next instalments show how to make up monthly statements of the business. And that completes the principal parts of the system.

But it does not mean that the system discussion is to end. As long as a Department of Accounting can be of service to our readers they will have its service. Having presented a system for those who want it, Motor World is going to stand by and continue to do all it can.

Do Bargains Pay?

THERE is no question but what, unless conditions are unusual, it pays now and then to conduct a bargain sale. It brings new trade into the store to hold a one-day bargain sale on some article of demand. Even if the buyers don't buy anything else at the time, they have been brought into touch with the store and endless possibilities are opened up. But after the sale the article should be put back at its regular price and kept there.

There has come to Motor World's attention a dealer and garageman who goes too far in the matter of bargains. He sells tires always at a price that takes away all his profit and in some cases even more than the profit. He loses money. His argument is that he is so near a big city that unless he does something of this kind his customers will buy all their goods in the big city.

He is wrong. A merchant of the right sort would, by legitimate methods, combat the big city's market and get business. It is being done by many and others can do the same thing. Merchandising and not price-cutting is what wins. And continuously price-cutting is not running a bargain.

Winter Business

IN several issues Motor World has suggested that there is profit in it for the garageman and dealer if he will endeavor to keep his business curve up during the winter months. It is possible to keep the otherwise-idle shop running and to keep customers coming even though the snow cover the ground.

On page 18 this week are two winter business points. Recently a business-pulling letter was run. Would any garageman or dealer care to have Motor World make suggestions as to how he might get winter business? If so, write, stating where you are located, the size of town, your location in the town, the size of your garage and its equipment, what the features of your business are, your class of trade and any suggestions you wish worked out. Perhaps Motor World can be of some assistance. We are willing to try, anyway.

Incidentally, it is again urged that manufacturers go strongly along this line. A certain popular weekly last week contained a two-page ad that helps. There should be more of the same tone—and from makers of accessories as well as of cars. It is a point for the united effort of the industry.

Our Creed

MOTOR WORLD stands for education. This is our creed for 1916.

Our 1916 program, so far as lies within our power to make it so, will be one concentrated effort for greater education among dealers, among jobbers, among repairmen, among garagemen. It will be the be-all and end-all of our greatest efforts. Last year we set out with this ensign of education; this year we start the year with the same flag unfurled, but with a better conception of the necessary work of education and with a firmer determination to carry the movement through another twelve-month.

Motor World believes that education and order are two of the great essentials of business, of successful business; business that shows a balance on the profit side of the annual statement. Without order and education it is sheer luck if anyone closes the year with a profit; those who have done so have been carried along on the wave of prosperity in spite of their own handicap—their shortcomings; they have made money in spite of themselves.

Last year the clean shop, better business methods, the merchandising of accessories, and accounting were advanced as positive methods of educating the great dealer organization, of educating a little further the 50,000 dealers engaged in the retail and wholesale trade.

More Accounting, Better Methods

For 1916 we are going to keep this program going on with renewed vigor. Motor World's Simplified System of Accounting is well under way. The thin edge of the wedge has been entered. More dealers are thinking accounting, good business systems in offices, in salesrooms, in repairshops, in garages and in accessory stores than ever before.

Make it a part of your 1916 creed that you clean house in your business system. Get a system. Many today have the best system needed. It has been installed by men who know how. They have climbed the hill and have no need to change. They have started 1916 along the right road. But for every one of these there are a score of others, perhaps more, who have not climbed the hill, who must get a better business system. Make it YOUR creed to get a system.

We shall continue our campaign for better accounting systems and our pages are wide open to every reader. If you do not understand what we write, drop us a letter. We will consider it a favor to have the opportunity of assisting our readers in any of their problems. Our staff is composed of men who are spe-

cializing on studying the motor car business, the business of selling cars, repairing cars, conducting garages, selling accessories, etc. They have visited thousands of motor car salesrooms during the past year. They have met the salesman face to face; they have met the garage manager face to face; they have talked face to face with the repairman. They have studied the problems of all, they have analyzed their difficulties and they have suggested remedies; suggested lines of education that are already accomplishing much.

We Reach Out to Broader Fields

For 1916 we are going to do our part to push this work much further. We are going to investigate conditions in states that we could not reach during the past year. We are going to fill our pages with more pertinent facts on doing business than we have been able to get together during the past year.

We are going to work stronger for more garage organizations of the legitimate, uplifting kind. Garagemen must get together. "United we stand, divided we fall," applies particularly to the garage business. The garagemen in some states have started organizations in the past year; other states have unfortunately been the victims of promoters who would start organizations to make a position for themselves. These are selfish individuals, working only for themselves, and making the dealer but a means to their own selfish ends. We are opposed to such fly-by-night promotions; we shall do what lies in our power to stamp out this evil.

Each city requires its dealers' organization. Dealers have many difficulties in common that can only be solved when they get their feet under the same table, look each other squarely in the eye and talk business. The business you are head of, or that you own is too important to be treated otherwise. Motor World stands back of the legitimate dealers' organization but it is dead against the "personally promoted" type.

Motor World's campaign for the clean shop will be continued. We have let up on it a little of late because of our campaign for accounting. The selling season is coming, the touring season is ahead and the clean shop will assist you in selling accessories. If you display your accessories attractively the car owner will be induced to buy. He will see that you are in the accessory business. If you do not show him your stock of accessories you can scarcely blame him for imagining that you do not sell accessories.

Motor World for 1916 will be a text book on Order, Cleanliness, System, Merchandising, Modern Methods.

The RETAIL NEWS

EAST

The Kelly-Springfield Motor Truck Co., New York, has leased to the Chase Motor Truck Co. the store and third floor at 239 West 56 street and the entire building at the southwest corner of Broadway and 50th street to the Chalmers Motor Co.

C. E. Trace, Baltimore, who represents a number of cars, will in the future trade under the name of Maryland Motor Car Co. and will move from his present location, the Apartment Garage, to McMechin and Mt. Royal avenues. The latter is the present home of the Winton Co., which will move to its new home, Charles and Oliver streets, within a short time.

The Annapolis Motor Car Co., Inc., Annapolis, Md., has been incorporated at \$25,000 by Robert S. Noah, Frank M. Duvall, M. O'Neill, Bernard C. Huff and Robert Combs.

The Forrest Park Garage Co., Forrest Park, Md., J. F. Riddle, president, awarded a contract this week for a garage, to cost \$6,000.

E. W. Eisenauer, Baltimore, Md., plans to build a garage on North avenue, east of Charles street. It will occupy a lot 22 x 127.

M. N. Barrett, Worcester, Mass., has taken the agency for the Pullman.

Harpers Garage Co., Beverly, Mass., is to open a garage at Salem and Lafayette avenues.

G. Simeon Hammell, Worcester, Mass., has bought the interest of Frederick B. Williams in the Worcester Motor Car Co.

Charles B. Treat, Bangor, Me., Studebaker dealer, has leased additional quarters adjoining his salesrooms.

Smith & McCarthy, Pittsfield, Mass., have moved their garage business to a more central location.

The Bangor Motor Co., Bangor, Me., has erected an additional building for a service station.

Ralph H. Lincoln & Co., Fall River, Mass., Studebaker dealer, has moved into new quarters.

John L. Judd, Boston, Mass., Allen and Lewis dealer, has added the Auburn.

Philip E. Hawley, Boston, formerly manager of the Boston branches of the Studebaker and King, has branched out as a dealer and has taken the Saxon for eastern Massachusetts, with headquarters at 889 Boylston street, Boston. J. E. Cowan is associated with him in the agency.

Joseph S. Porter, Boston, formerly factory representative of the Regal and who formed the Porter Motor Sales Co., Boston, to handle the Regal and Pathfinder, has resigned from the company. W. E. Cottrell is now in charge.

BOSTON—Ground has been broken for a building at 683 Beacon street, to be occupied by the Oakland Motor Car Co., Pennsylvania Tire & Rubber Co. and the John L. Judd Co., dealer in the Lewis VI, Allen and Auburn. The structure will be ready in April and will cost about \$110,000. It will be three stories and basement of reinforced concrete.

The Hollier Motor Sales Co., Boston, opened for business last week on Boylston street, with S. G. Benson, sales manager, and N. W. Thompson, Boston manager.

The Central Park Garage, Buffalo, located at Main and Amherst streets, has just erected an addition at a cost of \$10,000. The

new section is 48 x 100, and, like the main building, is of modern and fireproof construction.

The W. H. Marble Auto Co., Brockton, Mass., celebrated the opening of its new building last week with an open house all week.

The Baker Motor Sales Co., Cambridge, Mass., has taken over the service station of the Knox Motors Association, adjoining its own quarters.

The Fisk Tire & Rubber Co., Philadelphia, is having plans prepared for a three-story brick service building, 20 x 30, at 258 North Broad street.

Former Senator E. S. Goodrich, Hartford, Conn., plans to erect a garage to accommodate 200 to 300 cars; the garage, which will be at the rear of 999 Main street, will be of brick and concrete, 128 x 168.

The Harrington-Hudson Co., Hartford, Conn., has established a service station for the Hudson in the Ashwell building, 341 Trumbull street.

The Hartford Motor Car Co., Hartford, Conn., has completed a new three-story service building at 404 Main street and will utilize the ground floor as a service station for the Dodge. The second floor is used by the Walker & Barkman Mfg. Co., makers of Pope-Hartford parts. The top floor has been taken over by the Hartford Auto Painting Co.

The R. William Sheldrake Co., Philadelphia, has leased the first floor and basement of the southwest corner of 33rd and Chestnut streets for the sale of accessories.

Edward H. Brownley, Baltimore, has been appointed receiver for the Southern Engineering Corp., dealer in automobile and electrical accessories, 223 West Saratoga street. It is stated that the concern is not insolvent but that the action was taken to meet outstanding debts. The stock and assets are estimated at \$31,000 and the liabilities at \$19,300.

G. E. Blaylock, Baltimore, agent for the Fall tires, has moved into larger quarters at 1811 North Charles street.

William J. Tickner & Sons, Baltimore, proprietor of Tickner's Garage, 1722 West North avenue, has installed a \$4,000 heating plant. One hundred and twenty cars are stored.

White's Garage, West Ossipee, N. H., has recently doubled the size of its garage and now has over 8,000 ft. of floor. It has added a paint shop and machine shop for winter overhauling and painting.

The Harris Engine Works, Wilmington, Del., manufacturers of motors and agents for the Cadillac, has purchased a lot at Eleventh and King streets on which it is proposed to erect a garage.

The George W. Reinbold Co., Philadelphia, is erecting showrooms and a service station at 2506 North Broad street. It handles the Scripps-Booth.

E. W. Bartow, sales manager of the Hanson-Peacock Corp., Brooklyn, has severed his connection with that company and is

now associated with Frank Dunham, handling the Paige in Brooklyn and Long Island for the Windsor-Mahud Co., Inc., at 1410 Bedford avenue.

Flint's Garage, Ashland, Me., has been opened by C. Homer Flint and C. A. Flint.

The Gomery-Schwartz Motor Car Co., Philadelphia, has moved into its new eight-story home on Broad street, below Vine street.

The Metz Co. has opened new showrooms at the southwest corner of Broad and Wood streets, Philadelphia.

R. M. Hillas has been made sales manager of the Newark branch of the Whiting Motor Co., New York. He was formerly a salesman in the New York branch. The company handles the Mercer.

L. de F. Munger, New York, body manufacturer, has been placed in charge of the custom body department of the C. T. Silver Motor Co., New York.

The New York Spitzdorf service station has installed a storage battery department.

The A. L. M. Motor Sales Co., New York, Westcott dealer, has taken new quarters at 1920 Broadway.

The Paige-Detroit Co. of New York has opened a service station at 18 West 63rd street.

The Swedish Crucible Steel Co., St. Louis, has opened a New York branch on West 55th street, west of Broadway, in the building formerly occupied by the C. T. Silver Motor Co. as a service station.

The Motor Car Equipment Co., New York, is moving from West 56th street west of Broadway to 19 West 62nd street, occupying a whole building.

NORTH WEST

The States Auto Supply Co., Oskaloosa, Ia., will locate in Des Moines, Ia., at 1013 West Walnut street, Jan. 1. The company has outgrown its present quarters and is making this move to get in the center of the territory which it covers. The sales force will be increased and the stock doubled.

H. C. Monahan, who formerly owned and operated the Tipton Garage, Tipton, Ia., is now located at 414 Main street, Davenport, Ia., having purchased the garage end of the Iowa Auto & Tire Co. He is operating under the name of River-to-River Garage.

Russell Wilson, Wallace, Ida., formerly service man for the Spokane Hudson agency, has purchased a half interest in the Idaho Garage, Wallace, and will handle the Hudson.

T. S. Wood, State Center, Ia., has sold his buggy business and will concentrate on automobiles. He sells the Buick.

The Nelson Motor Co., Ringsted, Ia., is building a cement block addition, 50 x 60, with a basement under the entire space.

J. W. Smith, Independence, Ia., is enlarging his garage and repairshop. He has leased a second building, adjoining his old location, and will connect the two, doubling his capacity. The new building will be devoted exclusively to repair work.

The Chalmers Motor Co. will establish a wholesale distributing warehouse in Des Moines to serve the Iowa territory. Provision will be made for a capacity of 200 cars and a minimum of 50 will be carried. Formerly Iowa deliveries have been direct from the factory. The new warehouse will handle wholesale business only. J. H. W. Mackie, of Detroit, district manager, will be in charge.

O. C. Berg & Co., Northwood, Ia., suffered loss by fire Dec. 11.

Charles B. Elliott, Creston, Ia., Ford dealer, has bought ground for a new garage, 60

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x 120, of brick and steel construction, and two stories high.

T. F. Donnelly, Coggon, Ia., has started excavation work for an addition to his garage.

Thomas and Frank Goodell, Lansing, Ia., will build a garage and dance hall, 38 x 120, and two stories, which they will erect on ground which they have just acquired.

R. A. Carpenter, Bouton, Ia., has leased the L. E. Thornburg Garage and will open for business at once.

SOUTH

The Louisville Double Tread Tire Co., Louisville, Ky., has opened an office and shop at 542 Third street. **Harry N. Cohen** is president.

The Cherokee Motors Co., Louisville, Ky., a new concern, has opened an office and salesroom at 305 West Walnut street. A garage will be maintained at 712 Baxter avenue. The company handles the Maxwell.

The White Motor Co., Inc., Richmond, Va., formerly located at 1609 West Broad street, has changed its name to Terminal Motor Co., Inc., and has moved into new quarters at 15 South Ninth street with **C. H. Raymond** as manager.

SOUTHWEST

T. H. Lampe and Vinson Grimes, Lahoma, Okla., have purchased an interest in the Enid Auto & Livery Co., 217 East Randolph street, Enid, Okla.

Mark Bunker, Wichita, Kan., has leased the ground floor of the new building being erected at Douglas and Wichita avenues and will open a garage.

William B. McLane, Memphis, Mo., has purchased the Memphis Garage Co. and will continue to sell the Reo with **Arthur Staples** as salesman and **Fred Allen** in charge of the mechanical department. The business will be moved into a new building.

William Fireoved, Smith Center, Kan., has purchased a half interest in the garage of **Sargent & Rhodes**. The company will continue to handle the Maxwell.

George Scott, Bellaire, Kan., has purchased the garage of **Frank Cole**, Smith Center, Kan., paying \$8,000. Cole expects to go to Los Angeles. His son, **Ray Cole**, will remain with the garage.

Edward Erickson, Nevada, Ia., has purchased a garage at Ridgway, Mo., and will remove there at once.

E. J. Klesling, Richmond, Mo., has opened a new garage at Thornton avenue and Franklin street.

The Joplin Tire Service Co., Joplin, Mo., will no longer be conducted by **George B. Draper** and **J. B. McCullough** jointly, Draper having sold his interest to McCullough.

Johnson & Moore, Floresville, Tex., are erecting a garage and repairshop.

W. J. Carver, formerly of Eagle Pass, Tex., was recently appointed manager of the Cadillac Sales Co., Austin.

W. R. Edison, El Paso, Tex., has incorporated the Marion Auto Sales Co., to sell the Marion. He has headquarters with the Mission Garage, Mills and Campbell streets.

L. W. Teel, El Paso, Tex., has opened a garage and repairshop at 315 Texas street.

The Hudson-Brace Motor Co., 1717 McGee street, Kansas City, has doubled its space by constructing a new one-story building, extending back to Oak street. The company is the distributor of the Hudson.

Bruening Bros. Auto Co., 1712 Grand avenue, Kansas City, will move into the quarters now occupied by the Studebaker Corp., at 1620 Grand avenue. The Studebaker company will move into a new five-story

building at 21st street and Grand avenue. **Bruening Bros.** are distributors of the **Aperson** and **Kissel Kar**.

Waller & Williams, Smithville, Mo., have opened a new garage in the H. M. W. building in that city.

Winterscheidt & Sawyer, Horton, Kan., are building a garage. They will continue to handle the Maxwell.

Smith Bros., Independence, Mo., have opened a garage, the largest in the city.

Thomas Markel, Monett, Mo., is constructing a new garage, costing about \$10,000. It will be opened early in January.

R. W. West, Pretty Prairie, Kan., has sold his interest in the Auto Specialty Co. to **J. H. Simpson**. The firm now is composed of **Ad Catlin** and **Simpson**. It will continue under its old name.

J. E. Frazier, Pratt, Kan., has opened a garage and car agency at 410-12 South Main street and will handle the Hudson and Dodge.

Pool Bros., Sterling, Kan., have sold their garage and will open a new one on the south side of the city square. They will continue as Overland dealers.

The Taylor Motor Co., Hutchinson, Kan., will open an accessory and supply store on South Main street. Another filling station has been opened by the same company at Fourth avenue and the city limits.

The Kansas Motor Car Co., Wichita, Kan., has opened a branch in Anthony, Kan., with **H. W. Reneau**, formerly of Manchester, as manager. The company handles the Studebaker.

A. J. Penrose, Arkansas City, Kan., has opened a new machine shop at 410 South Summit street.

L. E. Fawyer, Cassville, Mo., has opened a new garage. **Mr. Fawyer** formerly was in Seligman, Mo.

R. E. Pilant, Ottawa, Kan., has purchased the garage and salesroom of the Ottawa Motor Co. from **Harvey & Twyman**. The purchase ends the receivership of the company.

F. J. Thompson, Norwood, Mo., has opened a garage.

The Hess-Busselle Co., St. Louis, has been organized by **A. D. Hess** and **Howard Busselle** to sell the Detroit Weatherproof Top. The new concern is located at 3150 Locust street.

The Entz Automobile & Battery Co. of St. Louis on Dec. 1 absorbed the Electric Garage & Service Co.

The Harvey Auto Top Co., 4050 Easton avenue, St. Louis, has begun the manufacture of winter or convertible tops.

Allard Bros. Garage, Kensington, Kan., was burned. Eleven cars were badly damaged, five of which comprised a Dodge factory shipment received only a few days before. The total loss is about \$5,000, not covered by insurance.

Reidel & Bungardt, Victoria, Kan., will open a new garage. They handle the Overland.

B. F. Cleeton, Belle Plaine, Kan., has opened a garage in the Miller building. Cleeton formerly operated a garage in Cleveland, Okla.

The Painter & Oliphant Motor Co., Hutchinson, Kan., will move from its present quarters, 25 First avenue, to a new building being erected at Walnut street and Avenue A by **Dr. F. W. Cook**.

Theodore Franzen, Sapulpa, Okla., has purchased the Producers' Garage and now is operating it.

J. B. McKinely, Davidson, Okla., will open a garage.

J. W. Crews, Clinton, Mo., has occupied a new building at 128 North Main street as a garage.

Clark Burchnell, Norwich, Kan., has bought the interest of **John Boatwright** in the garage formerly conducted by both of them.

The Warren Storage Battery Co., Joplin, Mo., has moved into a new building at 208 Joplin street and has opened a charging plant.

W. H. Meyer, Columbia, Mo., is the owner of the new garage being constructed at Ninth and Walnut streets.

E. C. Toler, Anthony, Kan., has purchased the Gish Automobile Co. **Frank Gish**, one of the former owners, reserves his agency for the Dodge and will continue to manufacture the Stabur Pilot, an attachment for the Ford.

The Fowler-Martin Tire & Repair Co., Kansas City, Mo., has leased the building at 1920 Grand avenue and will use it as a warehouse.

Roy Shelly, Richmond, Mo., has purchased the Hudgins Garage on Camden avenue.

Leslie Gillespie, Cottonwood Falls, Kan., has opened a repairshop in the Harman building.

Clarence Dryden, Lyndon, Kan., has opened a garage.

Andrew Tabler, Rich Hill, Mo., has purchased the garage owned by **Emmett McGlothlin**. The property is valued at \$6,000.

McArthur Bros., 321 North Central avenue, Phoenix, Ariz., have sold their machine and repairshop to **Jack Sparks**, **Tom Sparks** and **P. T. Bone**, who will conduct the business under the name of Arizona Auto & Machine Works. **McArthur Bros.** retain their sales business and part of the floor space.

W. E. Gardner, Chevrolet dealer in Phoenix, Ariz., has moved into new quarters at Fourth and Washington streets.

The Southwest Kissel Kar Branch, Dallas, has established a branch in Yorktown, Tex.

The Atlas Tire Co. of Kansas City has leased a building in Dallas, Tex., at 2006 Commerce street. The company will open its business in that city soon.

The King dealers in Texas are: **George F. Sawyer**, Livingston; **A. W. Turner**, Waco, and **P. L. Brown**, Sherman.

MOUNTAIN

Charles E. Parker, Lewiston, Ida., has completed a brick garage. He will handle the Oakland.

PACIFIC COAST

H. J. Buren and **B. J. Bridgeford**, Tacoma, Wash., have taken over the A Street Garage from **Dr. C. E. Taylor** and will make improvements. They will carry tires and accessories and also do a storage business.

R. L. Toole and **J. W. Schumock**, Tacoma, have opened the Auto Baggage & Transfer Co. and located at 111 South Ninth street.

The Metz branch, Seattle, 19th and H and East Mercer street, was destroyed by fire with the loss of eleven cars. Temporary quarters have been secured on 12th avenue. A new building will be erected at East Pike street and 11th avenue.

The Remy Electric Co. factory branch, Los Angeles, has opened up in the building formerly occupied by the Aston Motor Car Co., 1310-1312 South Grand avenue.

The Hood Tire Co., Los Angeles, has moved into the store formerly occupied by the Savage Tire Co., 1223 South Olive street.

The Chandler Motor Car Co. of California, Los Angeles, has opened branches and service stations at 125 East Third street, Long Beach, and 317 East Colorado street, Pasadena.

George B. Deter, 400 North First street, San Jose, Cal., has secured the agency for the Haynes for Santa Clara county.

Frank H. Reid, Madera, Cal., has closed a contract to represent the Haynes in Madera county.

The Los Angeles Ignition Works, Los Angeles, Cal., has had plans drawn for a building to be located on South Figueroa street, near Pico. Work is to commence within the next week.

Harvey M. Hanawalt, Lordsburg, Cal., is erecting a new garage of enameled brick and reinforced concrete, 50 x 100, which is to be leased to O. J. Beaver, owner of the Overland Garage, Pomona, Cal. Beaver will conduct the two garages with the assistance of a Lordsburg manager.

The A. M. Scott Tire Co., 630 Van Ness avenue, San Francisco, has been appointed distributor of the Hendrie tire for northern California.

J. H. Hirsch, Pacific Coast Chalmers representative, is now located in Portland, Ore., where he takes charge of the offices of the Chalmers Motor Co. and supervises the distribution of the Chalmers throughout the northwest.

John A. Walters, Portland, has recently doubled his floor space to accommodate his stock of tires and make room for a magneto station. R. W. Lee has been appointed manager of the magneto station.

E. E. Cohen, Portland, Ore., a trade veteran, has incorporated the Oldsmobile Co. of Oregon. The new company will handle the car in ten counties.

L. B. Merton, of the Pacific Coast accessory firm of Hughson & Merton, has been appointed general manager and will hereafter be located in San Francisco. Edward Johnstone, of the same organization, has been promoted from the managership of the Portland branch to the management of the northwest territory, including Oregon, Washington, Idaho, British Columbia and western Montana. Hughson & Merton will shortly add another branch to their chain of stores, in Spokane, Wash.

Floyd J. Logan, for the past three years one of the leading automobile men of western Montana, has removed to Tacoma, Wash., as distributor of the Maxwell in Tacoma and Pierce counties, and opened quarters at 742 Commerce street. P. R. Hewitt has taken over Logan's interests in Missoula, Mont., and will represent the Ford.

The Ghent Motor Co., Seattle, has been incorporated at \$2,000,000 by G. A. Ghent, O. L. Brockett and J. Blumberg, of Chicago, and E. N. Winslow and J. H. Kugler, of Seattle.

The Harry L. Olive Co., Spokane, has opened a used car department at W 1120 Riverside avenue. The building is 71 x 115 and has three floors.

A. B. Avery, Clarkston, Wash., has taken the agency for the Oakland.

CANADA

The Capital Garage, Vaughan & Kitchen, proprietors, Fredericton, N. B., has opened a new concrete garage; it will hold about 40 cars.

P. C. Hagerty, 147 Cobourg street, Stratford, Ont., plans to open up as an accessory jobber.

C. T. Connors, Niagara Falls, Ont., has let the contract for a fireproof garage, 60 x 120. A repairshop will be operated and accessories stocked.

The Frappler Motor Supply & Vulcanizing Co., Montreal, has opened up at 2468 St. Hubert street.

The Metropolitan Garage, Vancouver, B. C.,

has opened up at 821 Fort street under the management of R. E. McMorran. In addition to handling used cars and accessories the company distributes the Cartercar.

MIDDLE WEST

The Goodyear Tire & Rubber Co.'s branch in Cleveland will move from Euclid avenue to a new building on 19th street, near Euclid avenue.

The Cleveland branch of the Stewart-Warner Speedometer Corp. will move from 1831 Euclid avenue to 2039 the same street.

J. A. Brandt, Cleveland, formerly with the Quaker Tire & Rubber Co., has been appointed manager of the Euclid avenue branch of the Collister & Sayle Co., accessories and supplies.

The Safe Motor Sales Co., 6504 Euclid avenue, Cleveland, has been made distributor of the Federal truck. This company also handles the Simplex and the Vim light delivery car.

The Eiseman Auto Co., 1825 East 13th street, Cleveland, has taken the agency for the Marmon, which will be handled in addition to the National and KisselKar.

The Motor Equipment Co., Cleveland, recently incorporated, will open a supply store at East 102nd street and Euclid avenue about March 1.

The Ris Motor Co., Cleveland, will enlarge its display room on Euclid avenue, near Ninth street, to make room for a line of Diamond-T trucks, for which it has become distributor in Ohio. The company also handles the Dort car. A service station has been opened at Prospect avenue and East 17th street.

The Overland-Nottingham Co., Cleveland, has been incorporated at \$10,000 to sell cars and do a general garage business. The incorporators are M. L. Bridgman, E. C. Hartman, Harriet J. Hartman, Jacob J. Larick and Nellie B. Larick.

The Hudson-Stuyvesant Motor Co., Cleveland, handling the Hudson, has awarded the contract for a four-story building at 2012 Euclid avenue. It will have a front of 50 ft. on Euclid avenue and will extend back 189 ft. It is to be ready for occupancy by March 15. A repairshop will be operated on the second and third floors and a paint shop on the fourth floor. The display and sales space, with the offices, will occupy the street floor, and a used car department will be operated in the basement.

The McLean Tire & Rubber Co., Cleveland, has been incorporated at \$300,000 by Sterling Newell, G. W. Greene, Herbert F. Reid, L. S. Buchan and M. J. O'Conner.

The Fisher-Lenz Sales Corp. has been appointed Indiana dealer in the KisselKar and has opened up at Meridian and Walnut streets, Indianapolis. R. T. Fisher is president and C. P. Lenz treasurer of the new company.

Henry Voet, Grand Rapids, Mich., has opened a repairshop at 444 Beacon street.

The Detroit branch of the Chevrolet Motor Car Co., whose territory consisted of Wayne county only, is now also taking care of the retail business in Macomb, Oakland, Lenawee, Washtenaw and Monroe counties.

The Fremont Auto Sales Co., Fremont, Mich., distributor of the Buick and Dort, has moved into its new garage, which has a well-equipped repairshop.

Beard, Campbell & Co., Port Huron, Mich., has opened a new one-story service station, 22 x 60, on Michigan street.

B. F. Green, Hudson, Mich., distributor for the Hudson, has opened a salesroom on South Church street.

W. S. Butterfield, Battle Creek, Mich., will build a three-story garage, 58 x 150, on West Jackson street.

Collar & Hüllberger, Ionia, Mich., distributor of the Chevrolet, has disposed of the machinery, equipment and interest in the garage and will erect a new showroom and garage.

Fred A. Brenner, Saginaw, Mich., has purchased a half interest in the E. L. Black Co. The firm is now known as Black & Brenner. It handles the Dodge and Mitchell.

Erna Morgan, Saranac, Mich., is building a garage.

Irvin C. Ogden and E. A. Hamm, Decker-ville, Mich., have opened a garage and are handling the Dort, Jackson and King.

Charles Dyer, Dryden, Mich., has opened a garage.

William Schavey, Grand Ledge, Mich., has completed a new garage.

G. A. Raupp, Ecorse, Mich., will build a garage, 60 x 75, for his sons, Leo and Oliver.

George F. Robin, Port Huron, Mich., will erect a garage, 33 x 150, at Water and Fourth streets.

The Auto Sales Co., Owosso, Mich., Overland and Maxwell dealer, has opened a new salesroom at 203 West Main street.

The Edwards & Chamberlain Hardware Co., Kalamazoo, Mich., has opened an automobile supply department, which is in charge of H. H. Allen.

The North Woodward Auto Top & Trimming Shop, Detroit, has opened for business at 2770 Woodward avenue. William A. Partle is the manager. The company will make automobile tops, slip covers, radiator covers, covers for trucks and trim bodies.

The Fourth Chestnut Auto Repair Co., Columbus, O., has been made official service station for the White Co., Cleveland, and will carry a stock of parts for both pleasure cars and trucks. The appointment as official service station for the newly-formed Garford Motor Truck Sales Co., distributor of the Garford product, has also been awarded to the same company, which is located at 248 North Fourth street.

The Bashaw-Joy Co., Davenport, Ia., has been incorporated and will engage in the sale and repair of gasoline and electric cars at 117 West Fourth street. The capital stock is \$15,000. Wayne S. Bashaw is president and treasurer, and Guy Joy, vice-president and secretary.

Elbert L. Hill, Prophetstown, Ill., is erecting a one-story fireproof garage, 22 x 30. He will repair cars and carry supplies and accessories.

The Galena Motor Co., Galena, Ill., which has changed its name to Nelson's Garage, is moving into its new garage building, 62 x 120, built of concrete and fireproof. It has two large display windows, one for cars and one for accessories. One of the main features will be a rest room for ladies. Paul H. Nelson is the proprietor.

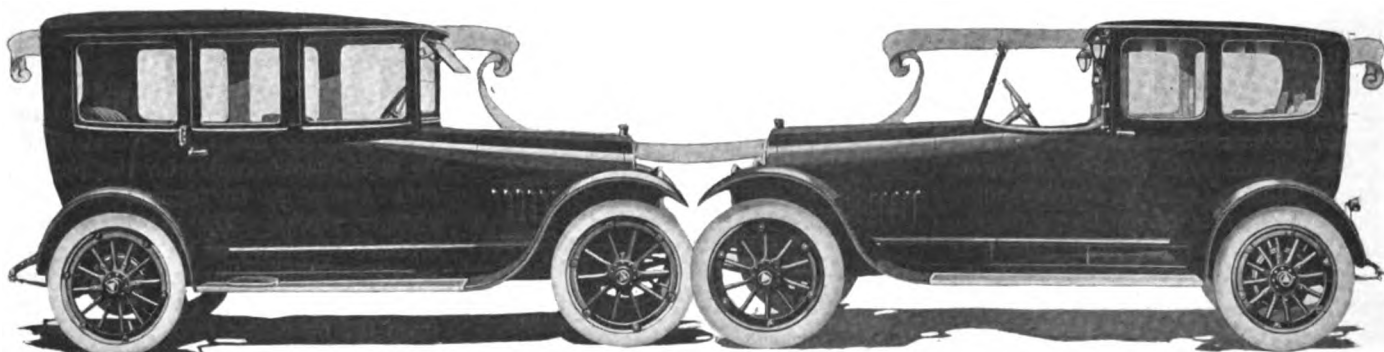
F. W. Whitney, Toledo, O., has opened a new fireproof garage, 50 x 100, at 108-110 Thirteenth street.

The Yellow Taxicab Co., Toledo, O., recently incorporated, will start a taxicab business with about a dozen yellow cars. Charles S. Northrup is general manager.

The Abbott-Toledo Co., Toledo, O., has leased a new salesroom and repairshop at Madison avenue and Thirteenth street.

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The Hudson Super-Six touring sedan is a new type and lists at \$1,900

The town car seats seven passengers and sells for \$2,500; also a new type

Hudson Super-Six at \$1,375 Entirely New

New Principle Employed in High-speed Motor—Exceptionally Large Valves—Vibration Eliminated

THERE has been much speculation as to the details of the new Hudson six, but all this will be swept away with its appearance at the show. Interest especially centers in the motor, which is the first to be built by the Hudson company itself under its own roof, and it is evidently destined to mark a new epoch in the development of sixes, for, with the same bore and stroke as that of the previous model Six-40, it develops 80 per cent more power. That is, whereas the Six-40 was considered a good example of six-cylinder practice, delivering a maximum of 42 horsepower, the new engine, with the same displacement of 288.6 cu. in. and the same bore and stroke of $3\frac{1}{2} \times 5$ in., develops a maximum of 76 horsepower in a test on the block.

The remarkable increase of power without change of size is chargeable, broadly, to a very decided reduction of vibration, the broad assertion being made by the Hudson company that it is lowered to a point never before attained in any type of motor. In fact, the basic principal back of the new engine has been patented, the application bearing date of June 28, 1915, and the date of granting is Dec. 28, 1915. Hudson does not choose to reveal the exact details upon which this patent has been issued, but it is said to be on the principle involved rather than any one mechanical part.

Of course, the engine is a higher speed type than the previous design, running upwards of 2,600 and 3,000 r. p. m. The main point of attack seems to have been the crankshaft, and recognizing that vibration has been a limiting factor in high-speed engines, they set about to get rid of the trouble by revision of the shaft construction, the result being a patented system of eliminating vibration so as to get an engine low in absorbed horse-

power and proportionately high in delivered horsepower.

General practice is adhered to throughout the other details of the engine, although, to take care of the higher speed, the valve openings have been considerably increased and the four crankshaft bearings have been enlarged as compared with the Six-40.

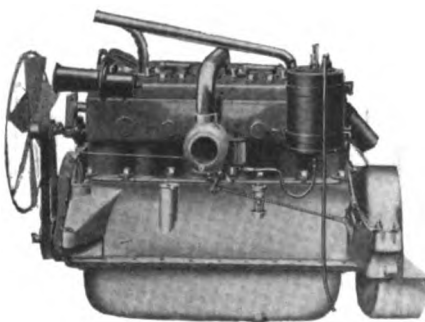
That the new designing ideas of the Hudson company have proven fruitful is evidenced from the fact that the new car, under supervision of the A. A. A., has broken all stock car records up to 100 miles on the Sheepshead Bay Speedway, New York. Its official weight, without passengers, but with tanks full, is 3,164 lbs. For the hour it covered 75.689 miles with two passengers, and with five passengers and top and windshield up the distance covered was 70.742 miles. The fastest two laps of the 2-mile track were during the hour trial and these were both made in 1 min. 33.8 sec., which gives an average speed of 76.75 m. p. h. These tests, therefore, give to the new Hudson all the stock car records from 5 to 100 miles for machines with motors of from 231 to 300 cu. in. displacement, and they further

present it with the hour record regardless of class.

The official A. A. A. report also shows the accelerative possibilities of the car to be remarkably good. From a standing start the touring model, carrying three passengers, attained a speed of 60 m. p. h. in 23 sec., and reached a 50 m. p. h. gait in 16.2 sec. Starting from 5 m. p. h. in high gear, it reached 30 m. p. h. in 10 sec. and 50 m. p. h. in 19.4 sec. The chairman of the Committee on Tests of the A. A. A. has certified that the car used was a stock model in every detail, and it is very evident from the figures above given that the engine is destined to upset many ideas that the maximum horsepower per cubic inch displacement was attained with sixes heretofore produced.

Although the new car is vastly superior to anything before built by Hudson, it sells at about the same price as before in the open models. The figure is \$1,375, which is \$25 more. There are four attractive closed body types at figures ranging from \$1,675 to \$2,500. Body designing has not been lost sight of in the attention that has been paid to the engine, and the body lines are entirely new, departing from the yacht-line idea of the former Six-40. The radiator is higher and the body lower, with more room especially in the front compartment. As compared with the Six-40, the wheelbase is $2\frac{1}{2}$ in. greater, being 125½ in. The passengers sit lower in the car, and there is the popular double cowl effect. That is, there is a sort of modified dash, finished the same as the body sides, in place of the seat backs formerly constituting the division between the two compartments.

Among the other differences in the car as compared with the previous model are, in addition to the entirely new design of motor, a new carbureter designed by



The Hudson Super-Six motor presents a clean exterior and equipment has been arranged with an eye to accessibility

Hudson which is of a type operating pneumatically, redesigned Delco starting and lighting, removal of the gasoline tank from the cowl and its location at the rear in connection with Stewart vacuum feed, new rear spring suspension of semi-elliptic type instead of three-quarter elliptic, and a corresponding change in the rear of the frame to take care of these springs. Such details as the three-speed gearset in unit with the engine, the multiple-disk clutch and the Hotchkiss type of drive remain practically the same as in the previous model.

Special attention has been paid to the accessibility of the engine, the arrangement of the units being with this in view. The engine is a conventional L-head poppet valve type in outward appearance, and it has a feature new to Hudson construction in the removable cylinder head, although the usual practice where the head is detachable of casting the upper half of the crankcase with the cylinders is not carried out. The cylinder block proper is separate from the crankcase. Hudson gives two reasons for the detachable head: it facilitates cylinder casting and gives better cooling, which is required by the large valves. It is pointed out that it would not be practicable to use port plugs of a conventional type without sacrificing much valuable cooling efficiency through the increased area of the walls and reduction of the water spaces.

Naturally, an entirely new oiling system had to be developed for this engine, due to its greater speed and power. This is termed a circulating, constant-level splash arrangement and the capacity is very large, totalling over 3 gal. The reservoir is at the bottom of the engine, the pressed steel pan being quite large and exposed so as to afford good cool-

HUDSON SUPER-SIX DETAILS

Price—

3-pass. roadster.....	\$1,375
3-pass. cabriolet.....	1,675
7-pass. touring.....	1,375
7-pass. touring sedan.....	1,900
Limousine.....	2,500
7-pass. town car.....	2,500
Make of motor.....	Hudson
Number of cylinders.....	Six
Shape.....	L-head
How cast.....	Block
Bore.....	3½
Stroke.....	5
S. A. E. rating.....	29.4
Carbureter.....	Hudson
Starting-lighting.....	Delco
Ignition.....	Delco
Wheelbase.....	125½
Clutch.....	Disk
Gearset.....	3-speed
Tires.....	35 x 4½

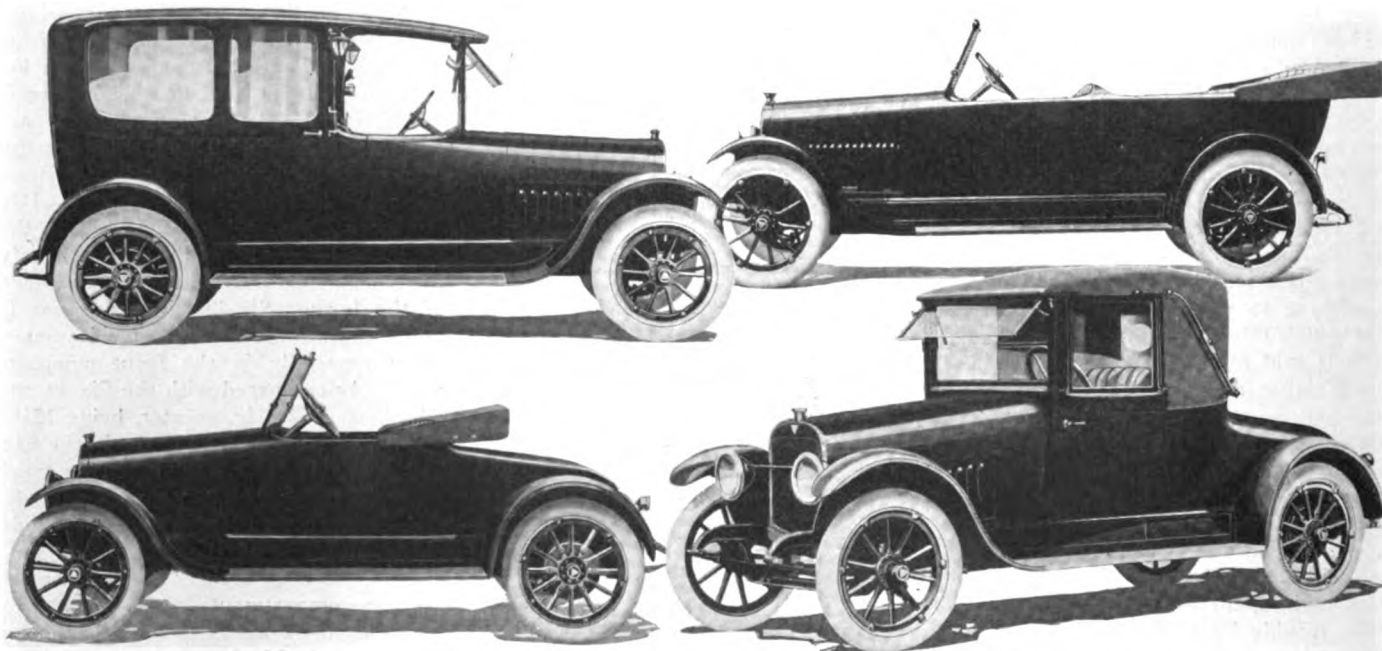
ing of the lubricant. The oil pump, mounted at the front of the engine, draws the oil from the reservoir through a screen and delivers it to the front compartment containing the timing gears, and from here it flows into the first oil trough under the first cylinder. The large splasher on the end of the connecting rod practically empties this trough at every revolution, throwing the oil into suitable channels on the side of the reservoir and crankcase. The upper channels feed the main bearings continuously, and the lower conveys oil to No. 2 trough, from which it goes on back successively through the other troughs to the last cylinder and thence to the reservoir again.

As the connecting-rod dippers would

splash more oil at high speeds than at low, it was necessary to control the stroke of the pump so that the flow might be proportionately increased to cope with the more rapid circulation. To take care of this, the carbureter throttle is interconnected with the pump in such a way as to regulate the pump plunger stroke. The action is simply attained by means of an eccentric and a very large pump plunger. At low speeds the eccentric holds the plunger away from the operating cam, and allows the plunger to come closer to the cam as the speed increases. Thus the pump has a short stroke when the engine is operating slowly, but when the throttle is opened the stroke is lengthened accordingly.

The Hudson company calls its new carbureter, which is its own design, a pneumatically-controlled device, since no action of the driver can alter the proportioning of air and gasoline. The suction controls the mixing of air and gasoline by lifting a piston measuring device in the mixing chamber, thus positively apportioning the ingredients in accordance with the motor demands.

In the cooling system, aside from the refinements, such as the increasing of the fan diameter and the making of the radiator core and shell separate, there is one especially notable feature. This is the construction of the water pump so as to eliminate any pipes or hose connections between the pump and the cylinder casting. The pump bolts directly to the face of the cylinders and the water passage leading to the jackets is cast integral with the cylinder block. The cylinder outlet connection, with two branches leading from the head, reverts to the brass pipe form so as to insure a certain amount of flexibility and un-



Hudson standard limousine type listing at \$2,500
The roadster, \$1,375, seats three passengers

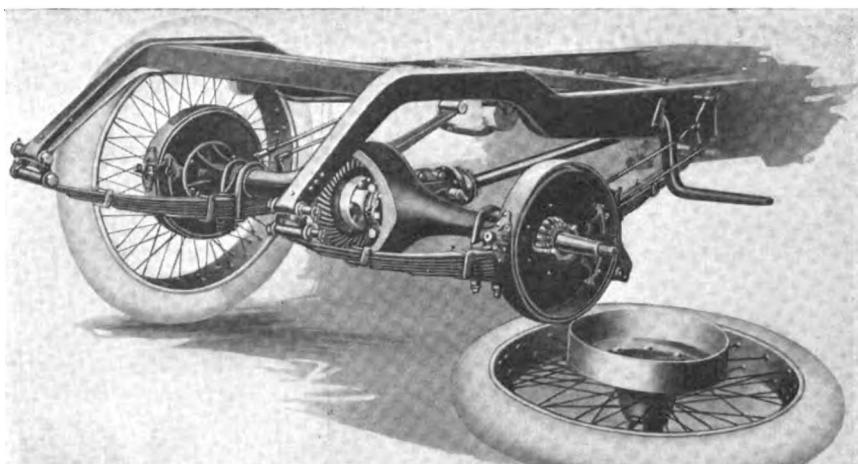
The standard touring model has lines that are new throughout
The cabriolet, like the roadster, seats three—\$1,675

restricted water passage, along with quicker repair possibilities than would be obtainable were the water outlet cast as a part of the head.

Delco ignition, as well as starting and lighting, is used. The distributor is placed vertically on the right forward side of the engine and is entirely independent of the motor-generator. There is an automatic governor controlling the operation of the ignition advance as on Hudson cars for the past two years, and by it the manual control is given a spark advance range from full retard to a position which would correspond with firing on dead center under normal road conditions. But from this point on to full advance the spark control is automatic, taking it out of the hands of the driver. The motor-generator occupies the right rear side and is driven from the pump shaft. To facilitate the lining up of the generator, it is pivoted in the crankcase supporting arm.

Reverting to the chassis, the characteristic Hudson simplicity is found, and with practically no design alterations in the gearset, the tubular drive shaft or the rear axle with its spiral-bevel gears, the new rear suspension claims special attention. The springs, semi-elliptic in form, are in direct line with the side members and taper towards the front, affording a direct support for the body and frame. It is explained that the half-elliptics are employed because they permit of greater length and that means practically a flat spring which affords great flexibility with minimum weight. Springs of such length could not be three-quarter elliptic, as they would have excessive side sway.

A noticeable outward point is the inclining of the windshield at an angle of about 30 degrees. This gives better appearance, reduces the length of the top, and kills reflections. It is also claimed that the vertical shield centers the draft and the dust on the back of the driver's



In the Hudson Super-Six chassis the frame has a sharp kick-up over the axle and the springs are hung beneath the axle. Spiral bevel driving gears are employed

head, whereas the slanting shield seems to carry it over the car, and offers less resistance.

A production of 30,000 of the Super-Sixes is planned for the year, and deliveries have already begun. The name Super-Six has been registered in the patent office.

Cadillac Convention in Florida

JACKSONVILLE, FLA., Dec. 23—Southern Cadillac dealers and distributors convened here recently. The meeting was the first held away from the Cadillac factory and there was a larger number of southern dealers present than would have been the case if they had to travel all the way to Michigan. E. C. Howard, the general sales manager, presided over the meeting. Other factory men present were L. McNaughton, assistant sales manager; F. G. Hill, Southern district representative, Henry Perry, Southern mechanical inspector. All of the sessions were held in the rooms of the Traffic Club at the Hotel Mason. Claude Nolan, the Jacksonville distributor, showed the visitors what the new

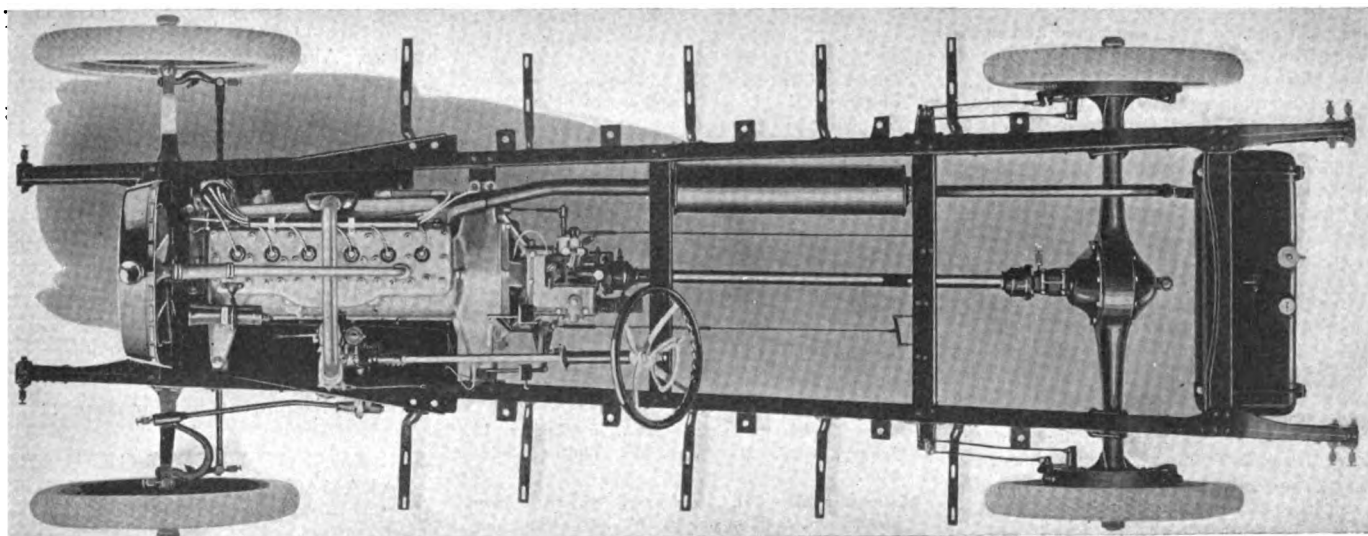
Cadillac could do by driving his demonstrator car at the rate of a mile in 38 3/5 sec.

A dinner at the Hotel Mason was among the social features. Among the cities represented were New Orleans, Birmingham, Asheville, Chattanooga, Knoxville, Winston-Salem, Charleston, Norfolk and Tampa.

Scripps-Booth Adds Four-passenger

DETROIT, Dec. 27—A four-passenger car mounted on an eight-cylinder chassis has been brought out by the Scripps-Booth Co.; the price will be announced later.

The eight cylinders are cast in two blocks with the gearbox in unit. They have a bore and stroke of $2\frac{3}{8} \times 3\frac{3}{4}$ and the rated horsepower is 35. Zenith carbureter, Atwater Kent ignition and Wagner starting and lighting are fitted. The clutch is a dry plate, the gearset has three speeds and the rear axle has spiral bevel drive. Five Houk wire wheels, mounting 32 x 4 tires, are included in the regular equipment of the car. The wheel-base is 115 in.



The characteristic simplicity of previous Hudson designs is plainly apparent in the new Super-Six chassis. The propeller shaft is unenclosed and the engine, gearset and clutch form a unit

Prominent Men of Trade Who Assume New Duties

**Resignations and Promotions That Serve
to Place Many Workers in New
Places—Few of Them Leave
the Industry**

Joseph F. Mayl, formerly sales manager of the St. Louis branch of the Firestone Tire Co., has been appointed branch manager for the same company at Memphis, Tenn.

H. J. Roberts, formerly with the Hudson and Chalmers companies in Detroit, has been appointed sales manager of the George C. Brinkman Motor Car Co., St. Louis, Maxwell distributor in eastern Missouri and southern Illinois.

H. E. Malany has been appointed sales manager of the Marcy Motor Co., Worcester, Mass., which recently took over the agency for the Chevrolet.

Frederick W. Grubb has been appointed sales manager of the Union Supply Co., Toledo car and accessory dealer.

H. A. Damon, formerly sales manager of the New England agency for Michigan cars, with headquarters in Boston, has been placed in charge of the sales of the Hollier Motor Car Co., Boston.

C. E. Davis, Portland, Ore., has been appointed manager of the Portland branch of the McGraw Tire & Rubber Co., which has established quarters at 344-8 Burnside street.

F. W. Topken, for eleven years chief designing engineer of the Chicago Pneumatic Tool Co., is now in complete charge of the mechanical and garage departments of the Hunter-Smith Sales Co., Tacoma.

H. A. Neill has been appointed manager of the Kansas City branch of the General Motors Truck Co., to succeed Estel Scott, who recently resigned as the result of ill health. Neill was district representative of the company in Atlanta.

M. A. Graham has been appointed assistant advertising manager of the Detroit Motor Car Co., Detroit.

C. O. Snyder, engineer and factory manager of the Arbenz Car Co., Chillicothe, O., has resigned but has not announced his plans for the future. Snyder was one of the pioneers in designing eight-cylinder motors in America, having built one in 1906.

Geo. P. Coleman has been appointed manager of the B. F. Goodrich Rubber Co. of Texas, with headquarters in Dallas.

L. M. Crittlesinger has been made factory manager of the Emil Grossman Mfg. Co., Brooklyn, N. Y. His previous connection was as production manager of Blake & Johnson, Waterbury, Conn. Prior to that he had been with the Chalmers, Thomas and Ford companies.

R. B. Tracy, formerly central manager for the Michelin Tire Co., Milltown, N. J., has been made factory representative with jurisdiction over Cleveland, Philadelphia, St. Louis, Des Moines, Minneapolis, Kansas City and Chicago branches.

Albert F. Mais has severed his connection as chief engineer of the Burford Co., Tremont, O., and become chief engineer of the Morton Truck & Tractor Co., Harrisburg, Pa.

H. G. Raymond has been appointed manager of the Brasher Motor Car Co., Columbus, O., Cole and Studebaker dealer.

L. L. Sanford, former manager of the Indianapolis branch of the Stewart-Warner Speedometer Corp., has been placed in charge

of all service stations of the company. His headquarters are in Chicago.

William N. Thompson, formerly purchasing agent, has been appointed sales manager of the Stutz Motor Car Co., Indianapolis.

R. S. McBeth has been appointed advertising manager of the Westcott Motor Car Co., Richmond, Ind.



These are the manufacturers who will attend the New York Show and the hotels they will make headquarters. The asterisk (*) indicates the men delegated to transact business with dealers.

CARS

Baker R. & L.—Biltmore, Vanderbilt—*E. S. Partridge, *A. C. Feah, *C. L. F. Wieber, Jr., *R. M. Owen.

Cunningham—Astor—*A. R. Dieter, C. A. Baird, J. W. Fulreader.

Daniels—Ritz-Carlton—*George E. Daniels, Mr. Tuft, Chief Eng.

Grant—Astor—*George S. Waite, Secy.; *R. R. Hall.

Haynes—Astor—*D. L. Watson, Genl. Sales Mgr.; A. G. Seiberling, Genl. Mgr.; Elwood Haynes, Pres.; R. T. Gray, Adv. Mgr.

Pathfinder—Vanderbilt—*W. E. Stalnaker, *S. C. Couzens, *F. G. Buskirk.

Pullman—Astor—*A. R. Cosgrove, Genl. Sales Mgr.; H. W. Heyden, Vice-Pres.; H. P. Jones, Secy. and Treas.; J. C. Schmidt, Pres.

Dodge Bros.—Ritz-Carlton—*C. H. Jennings, N. Y. Dist. Rep.; A. I. Philp, Genl. Sales Mgr.; George C. Hubbs, Asst. Genl. Sales Mgr.; G. H. Phelps, Direct. of Adv.; C. W. Matheson, Direct. of Service; W. I. Brown, Supervisor of Dist.; H. M. Robbins, Foreign Sales Dept.

Oldsmobile—*J. V. Hall, Sales Mgr.

Studebaker—Biltmore—*W. C. Shanafelt, R. T. Hodgkins, Sales Mgr.

Stutz—Woodward—*W. M. Thompson, *H. C. Stutz, Pres.; H. F. Campbell, Secy. and Treas.

ACCESSORIES

Boston Blacking Co.—Woodstock—*C. E. Swett (Headquarters, given in Before Show issue as Prince George, has been changed to Woodstock).

Friedstedt Rim Contractor Co.—McAlpin—*H. W. Merrill, Mgr. of Sales; E. M. Beuano.

Master Carburetor Corp.—McAlpin—Arthur L. Jeffery, Genl. Mgr.; *A. D. Walton, Sales Mgr.

Motometer Co.—*H. H. Boyce, *G. H. Townsend, Chas. S. Monson, Detroit Fact. Rep.

Universal Rim Co.—*Parker C. Thompson.

Victor Auto Parts Co.—McAlpin—*W. R. Hughes, John L. Corcoran.

ASSOCIATION NEWS

OMAHA BROADENS SCOPE

OMAHA, Dec. 27—The Omaha Automobile Show Association will henceforth be a prominent factor in the civic life of this city. This was decided upon at a dinner held in the Commercial Club rooms last week. Up to this time the association has restricted the field of its activities largely to boosting the annual motor show in the Municipal Auditorium. They now propose to widen this field, and with this end in view they propose to have one of their members elected to the directorate of the Commercial Club and thus keep in touch with every topic of live interest which may come up for discussion in this powerful body.

These topics as they come up will be further discussed at the regular semi-monthly meetings which the association proposes to hold hereafter, and the interest of the members is expected to take the concrete form of action wherever this seems advisable. In short, the association intends to become a sort of civic welfare organization, with the greatest good of Omaha and the surrounding territory in view, regardless of the nature of the need.

The membership of the association, although already large, will be further increased, and the membership dues will be raised a trifle to aid in the proposed energetic program.

COLUMBUS AFTER MEMBERS

COLUMBUS, O., Dec. 27—The Ohio Garage Owners Association is making a vigorous membership campaign in many parts of the Buckeye State with marked success. The officers of the organization are also making an effort to organize local organizations in a number of the cities and towns in the state. Auxiliary organizations have been formed at Columbus, Akron and Marion and steps are being taken for a local association at Youngstown. After the first of the year that branch of the work will be pushed under the charge of Secretary A. J. Peebles.

KENOSHA SCHEDULES SHOW

KENOSHA, WIS., Dec. 27—The Kenosha Retail Motor Car Dealers Association is planning to hold its second annual show in March. Exact dates will be selected later. The show will be held in the Coliseum, as a year ago.

KALAMAZOO ELECTS OFFICERS

KALAMAZOO, Dec. 27—The Kalamazoo Automobile Dealers Association has reelected these officers: President, G. A. Coates; secretary, J. M. Van Loon; treasurer, W. O. Harlow. The annua

show will be held the week of February 1.

Stevens Bill Reintroduced

WASHINGTON, Dec. 27—Congressman Ayres reintroduced the Stevens Bill which failed to pass the last session of congress, and it is understood that 168 members of the House of Representatives and a similar proportion of the Senate is prepared to support the measure. At the annual convention of the National Association of Automobile Accessory Jobbers, held in Kansas City, this body decided to support the measure, which has for its principal object legislation which will protect the independent dealer from unfair competition.

Utica Elects Officers

UTICA, N. Y., Dec. 27—At the annual meeting of the Utica Automobile Trade Association, A. A. Ledermann was elected president, other officers elected being, vice-president, Walter Schiller; secretary, George C. Donahue; treasurer, Wm. F. Carroll. The date for the annual show was set for Feb. 28-March 4, though a place has not yet been selected.

Fort Dodge Working on Show

FORT DODGE, IA., Dec. 27—The Fort Dodge Automobile Dealers Association held its regular meeting last week, the principal business transacted having to do with the forthcoming show. Vice-president J. W. Smith was given charge of decorations and A. C. Heath was placed in charge of space arrangements. Space already has been allotted to 18 dealers who will exhibit 71 models of cars. The show is to be held in the new Terminal Warehouse of the W. D. D. M. & S. R. R.

Fort Wayne Elects Officers

FORT WAYNE, Dec. 26—At a meeting of the Fort Wayne Automobile Trade Association the following officers were elected for the year: Alfred L. Randall, reelected president; vice-president, Chester Schiefer; secretary, Louis Ohnhaus; treasurer, Louis Blase. Plans for the annual Fort Wayne motor show are about complete. The exhibition will be given Jan. 10 to 15. There will be a floor space of 40,000 sq. ft.

Pegram Motor Head Dies

ATLANTA, Dec. 20—In the death of Samuel A. Pegram at a private hospital last night, following an extended illness, Atlanta lost one of its best-known automobile men. The deceased was the president of the Pegram Motor Co., 255 Peachtree street, Maxwell and Mitchell dealer. Mr. Pegram was 35 years of age and is survived by a wife and one son. He came to Atlanta ten years ago from Charlotte, N. C., and entered the hotel business. Later he organized the Pegram Motor Co.

Pennsylvania Gets Law on Compensation Jan. 1

Payment to Workers to Be 50 Per Cent of Wages—Minimum \$5, Maximum \$10—Length of Time Depends Upon the Injury

PHILADELPHIA, Dec. 27—On Jan. 1, when the new Pennsylvania Workmen's Compensation Act goes into effect, everyone engaged in the automobile business, either manufacturing or selling, will have to be insured. Compensation will be paid to employes on the basis of 50 per cent of their wages, the minimum being \$5 and the maximum being \$10, the length of time during which it will be paid depending on the nature of the injury. The premium rates are based on each \$100 of annual payroll, as follows:

	Pre-mium	Public Liability
Automobile dealers, including executive and clerical force.	\$0.61	
Automobile carriage and wagon body manufacturing.....	.74	\$0.05
Automobile mfg. (turning out automobiles complete).....	.56	.03
Automobile mfg. (assembling of manufactured parts only)	.51	.03
Automobile radiator mfg.....	.74	.05
Automobile salesrooms (no garage or repairshop).....	.33	.10
Automobile top mfg.....	.45	.05
Automobile windshield mfg...	.56	.05
Gasoline supply station—operation	2.40	2.00
Minimum prem. per location..	25.00	15.00
Automobile garages.....	.61	

Chamber in Safety Movement

NEW YORK, Dec. 27—At the December meeting of the National Automobile Chamber of Commerce, a Safety First committee was appointed by President Charles Clifton, who named J. Walter Drake, Detroit, as chairman. The committee will aid the movement to safeguard workers in automobile factories by the application of protective devices to dangerous machinery and co-operate with safety first organizations seeking to reduce the number of highway accidents.

Contrary to general opinion, speed and recklessness are not principal causes of accidents. Of 3,389 persons struck by vehicles of all kinds in New York during June, July and August, 737, or more than 20 per cent, were struck by horse-drawn trucks and wagons, whose ordinary speed is only 4 or 5 miles an hour and which never exceeded 10 or 12 miles. And of 1,084 persons struck by vehicles in August, only 4 were struck by automobiles as a result of speeding and but 1 as a result of recklessness of the driver.

Attempt will be made, however, to have the 96 leading automobile manufacturing companies embraced in the N. A. C. C. membership conduct a campaign of edu-

cation among purchasers of their cars and trucks.

Chamber Banquet Jan. 4

Tuesday, Jan. 4, has been selected as the date for the annual banquet of the National Automobile Chamber of Commerce. The dinner will be held at the Waldorf-Astoria Hotel in the evening.

Tire Prices to Go Up

NEW YORK, Dec. 27—Tire prices are scheduled to advance 12½ to 20 per cent with the advent of the new year. For some time the increasing price of crude rubber as well as fabric and other materials used in tire construction has been the basis of a rumor to the effect that the leading tire manufacturers were about to announce new lists considerably in advance of those now in force.

Jap Effect at Chicago Show

NEW YORK, Dec. 24—Samuel A. Miles, general manager of the Chicago Automobile Show, to be held in the Coliseum and Armory, Jan. 22-29, announces that the decoration scheme in the Coliseum will be in the form of a Japanese garden. This scheme will be carried out by covering the entire ceiling with Japanese flower effects and using Japanese kiosks together with Japanese lamps, etc., throughout the building.

Adds ¾-ton Cadillac Truck

CADILLAC, MICH., Dec. 27—A ¾-ton truck has been added by the Cadillac Auto Truck Co. as a running mate to the 2-ton. Details will be given out later.

Seattle Show April 10

SEATTLE, Dec. 25—Seattle dealers will house a show in the new Arena the week of April 10, the show to be given under the auspices of the Seattle Exhibition Co. The primary object of the exhibition is to give automobile concerns that are now represented in the Northwest an opportunity to show their cars and receive further representation.

Kansas City Gets More Room

KANSAS CITY, Dec. 26—The Kansas City motor show has outgrown its old quarters in Convention Hall and arrangements have been completed by E. F. Peake, secretary of the Kansas City Motor Car Dealers Association, by which the first three floors of the new J. I. Case building at 21st and Broadway will be the quarters of the big exhibition opening on Feb. 7. The Case building will offer about 40 per cent more floor space than did Convention Hall and will relieve the cramped conditions that for the last two or three years have necessitated cutting down the number of exhibitors.

A special feature will be made this year of the trucks and accessories.

TWO SHOWS IN COLUMBUS

COLUMBUS, O., Dec. 27—Two shows are scheduled for Columbus, to be held within two weeks of each other. The first will be held in the Memorial Hall, Jan. 13 to 18, inclusive, under the auspices of the Columbus Automobile Club and the Columbus Auto Trades Association. The other will be held in the same hall, Jan. 29 to Feb. 5, under the auspices of the Columbus Automobile Show Co., a corporation chartered for the express purpose of holding shows.

Philadelphia Speedway Coming

PHILADELPHIA, Dec. 28—The Philadelphia Motor Speedway, at Hatboro, is nearing completion. Its finances are said to be in good condition. There are 1,141 subscribers, holding 1,326 subscriptions. Eleven states are represented; 618 memberships are paid in full. The proposition is backed by dealers, hotel men, bankers, manufacturers and merchants.

AMERICAN CHAIN TO SUPPLANT NAME OF WEED

BRIDGEPORT, CONN., Dec. 28—After January 1 the name Weed Chain Tire Grip Co. will begin to fade from the business world. Its place will be taken by the American Chain Co., and the company requests that all correspondence be addressed to the latter corporation. There is to be no change in personnel, management, policy or product.

The American Chain Co. was formed several years ago and is practically identical with the Weed company. It was created to establish a distinct manufacturing department to deal with production problems, but with the completion of a new factory the consolidation toward which the two companies have been working will be made effective.

Ever Ready System for Fords

LONG ISLAND CITY, Dec. 24—A new electric lighting and starting system for Fords has been put out by the American Ever Ready Works, Long Island City. The starter is mounted in front of the radiator directly on the front of the crankshaft and runs at engine speed. The drive is through a flexible coupling without chains. The entire system is enclosed in a small black enamel case and the time required for attaching is about 1 hr.

Gas Soars in Texas

DALLAS, TEX., Dec. 18.—Gasoline today went from 19 to 21 cents, the highest price in recent years. It is predicted by local oil dealers that the price will go to 25. It is rumored that the Attorney General's department is making a quiet investigation of Texas conditions. Whether this is true cannot be learned here. The cause, it is said, is an "increase in exports."

New Insurance Rates in Effect After January 1

Rates Are Lower Than Under Old Schedules—Entire New Set of Rules Promulgated by Underwriters' Conference

NEW YORK, Dec. 24—At a special meeting of the Automobile Underwriters Conference last week, new rates were adopted for the full form of policy to be effective on all policies attaching on and after Jan. 1, 1916. Existing policies are cancelled, for rewriting must be on a short rate basis only. The following rules and qualifications were promulgated:

Reductions—Fifty cents allowed off Class A rates, 75 cents allowed off Class B and C rates, and \$1 off Class D and E rates shown on schedule, for use of the Standard Fire form of policy or the Conference form with the reduced rate of endorsement (excluding theft, valuation and automatic reinstatement clauses) attached.

Electric automobiles—This and next year models, 1½ per cent; last year, 1½ per cent; year before last, 1½ per cent; three-year-old, 2 per cent; older models, 2½ per cent. Amounts at option of underwriter; minimum premium, \$10. A reduction of ¼ per cent allowed for restricted form; minimum premium, \$10.

Dealers' automobiles—On new gasoline and steam cars charge 2½ per cent in Class A, 2½ per cent in Class B and C, and 2½ per cent for all others. On new electric cars charge 2 per cent for all models. On all second-hand cars 1 per cent additional rate must be charged. No rate cancellation allowed with a minimum charge of \$1, except that the minimum charge on new cars listed at less than \$1,200 shall be 50 cents. Amounts insured at option of underwriters. A reduction of ¼ per cent will be allowed for the attachment of the reduced rate endorsement, but in all cases the minimum charges of \$1 and in all cases the minimum charges of \$1 and of 50 cents shall apply as above indicated.

Note—Automobiles in the hands of dealers may be written under the ordinary form of

policy at rates provided for private pleasure cars subject to cancellation on a short rate basis only, except pro rata cancellation may be allowed when a new policy is issued on the same car.

Theft, full coverage—For \$15 additional premium the endorsement provided for this purpose may be attached to the policy, giving protection against loss by theft for the full amount.

Fire extinguisher allowance—An allowance of 15 per cent may be granted from the premium obtained under all rates named in this schedule (except from the \$15 additional charge for full theft coverage) for the attachment of the fire extinguisher endorsement as provided under conference rules.

Personal effects clause—The policy may be extended to cover personal effects, a specific amount being insured, at the same rate as charged on the automobile. Theft, robbery and pilferage not covered.

Additional bodies—In determining the original list price of automobile having more than one body the list price of the automobile equipped with the higher-priced body shall be taken as the original list price. No change to be made in the classification of cars during the policy period. In the case of automobile equipped with an extra body or bodies a specific amount must be applied to the chassis and equipment and to each body, the same rate being charged on the extra body or bodies as is charged on the automobile.

Auto Parts Reorganized

MILWAUKEE, Dec. 27—The Auto Parts Mfg. Co. has been reorganized and has had consolidated with it the Badger Specialties Mfg. Co., Milwaukee. Walter M. Schwab, Charles W. Beckler and Frank B. Sykes have taken active management of the company in the capacities of general manager, sales and advertising manager and factory manager, respectively. The company has greatly extended its facilities for manufacturing the accessories which it makes under the trade name of "Badger." The directors of the company are William Lindsay, B. L. Hibberd, E. O. Ellsworth, Charles Thompson, H. Nauman, T. J. Pringle, J. D. Miller, P. D. Durant.

NEW RATES FOR CAR INSURANCE APPLICABLE JANUARY 1

*Original list price of automobile when new.	Class A. \$3,500 and up.	Class B. \$2,100 to \$3,499	Class C. \$1,200 to \$2,099	Class D. \$700 to \$1,199	Class E. \$600 and under
This year and next year models.	\$1.50	\$1.75	\$1.75	\$2.00	\$2.00
Insure for not to exceed actual cost.					
Last year models.	Amount of Ins. at option of Co.	80% of original list price.	70% of original list price.	60% of original list price.	60% of original list price.
	\$1.75	\$2.25	\$2.50	\$2.75	\$3.00
Year before last models.	Amount of Ins. at option of Co.	50% of original list price.	50% of original list price.	40% of original list price.	40% of original list price.
	\$2.25	\$3.00	\$3.25	\$3.75	\$4.00
Three-year-old models.	Amount of Ins. at option of Co.	40% of original list price.	40% of original list price.	30% of original list price.	30% of original list price.
	\$3.25	\$4.00	\$4.25	\$4.75	\$5.00
Older models.	Amount of Ins. at option of Co.	30% of original list price.	30% of original list price.	30% of original list price.	30% of original list price.
	\$5.00	\$5.25	\$5.25	\$5.50	\$6.00

*Excluding cost of additional equipment and extra bodies. Minimum premium full form policy, \$10. Restricted form, \$5.

CELFOR TO PRODUCE M & S DIFFERENTIAL

DETROIT, Dec. 29—The Celfor Tool Co., Buchanan, Mich., has been licensed to manufacture the M & S differential and will use this differential as stock in all its axles as soon as facilities can be completed to manufacture them. The Celfor Co. is at present building a plant in South Bend, Ind., to be known as the South Bend Gear Co., which plant will manufacture solely the M & S differentials for the Celfor axles. A. E. Coon will be manager of the factory, the offices of which will be in the J. M. S. building, South Bend. It is expected that the Celfor company will start deliveries in January. The M & S differential will be interchangeable with the conventional types of differentials at present used in Celfor axles.

Kentucky Wagon Co. to Build Cars

LOUISVILLE, KY., Dec. 24—Announcement was made here today of a plan to organize a new concern to manufacture and assemble motor cars at the plant of the Kentucky Wagon Mfg. Co. The name has not been decided upon, but it is understood it also will be the name of the machine. In a letter sent out by the Kentucky Wagon Mfg. Co., stockholders have been notified of the project. A meeting of the shareholders of the wagon company is called for Dec. 31, when those attending will be given the opportunity of subscribing for stock in the new company. It is planned to issue between \$400,000 and \$500,000 of this stock. This capital will not be used for improvements, as the wagon plant is fully equipped for assembling the cars and manufacturing such parts as will be made in Louisville. It is proposed to make Robert V. Board, president of the wagon company, also president of the motor car concern.

Mr. Board said that the new company would assemble a pleasure car and a high-grade truck. The line will include a five-passenger four-cylinder touring car and a roadster. The car will have a 112-in. wheelbase and will sell for \$750. Twenty-five cars per day will be turned out.

Stewart Adds ½-ton Truck

BUFFALO, N. Y., Dec. 27—The Stewart Motor Corp. has added a 1,000-lb. delivery truck to its line; the price is \$695 for the chassis and \$750 with flare-board body. It is driven by a four-cylinder 3 x 4¼-in. valve-in-head motor which is combined with a dry-plate clutch and three-speed gearset to form a unit power plant. Ignition is supplied by a Bosch magneto. The axle is a Celfor internal gear type with a 6 to 1 reduction. It has two sets of 14-in. brakes. Cooling is by thermo-syphon, a honey-comb radiator being used. The loading space back of the driver's seat measures 6 ft. and the tires are 33 x 4 with five Firestone demountable rims.

Weidely Increases Capital to \$350,000

INDIANAPOLIS, Dec. 27—At a stockholders meeting of the Weidely Motor Co., held last week, the capital stock of the company was increased from \$100,000 to \$350,000 and the name of the corporation changed to Weidely Motors Co. The company is devoting its entire energies to the production of its twelve-cylinder motor and will increase the manufacturing facilities by enlarging the plant and adding more equipment. The officers of the company are: President, W. Edward Showers, Bloomington; vice-

Factory News of the Week

president and general manager, George A. Weidely; secretary-treasurer, Wm. A. Umphrey. These men, together with Edmund Rosenberg and L. A. Coleman, comprise the board of directors.

Moline Plow Car Named the Stephens

FREEMONT, ILL., Dec. 26—"The Stephens" is the name chosen for the new car shortly to be constructed by the Freemont branch of the Moline Plow Co. M. A. Steele, manager of the Freemont plant, is in Detroit supervising the construction of the models. Two cars are made and are due to reach Freemont Jan. 1. They will then be given a 5,000-mile test run. The output for the first year will be approximately 600.

Form Overland Selling Company

TOLEDO, O., Dec. 28—Wilys-Overland, Inc., has been organized under the laws of Virginia with a capital of \$500,000. This will be a subsidiary of the Wilys-Overland Co., Toledo, and will take over the sales department and handle the sales of the entire product of the parent company. All stock of Wilys-Overland, Inc., will be owned by the Wilys-Overland Co. and all officers and directors of the new corporation are from the official staff of the Wilys-Overland Co. John N. Wilys is president; H. T. Dunn, H. L. Shepler and C. A. Earl, vice-presidents; Walter Stewart, treasurer, and R. R. Scott, secretary.

Hercules Elects Directors

CANTON, O., Dec. 26—Following the organization of the Hercules Motor Mfg. Co. last week, it has been announced that operations will be started in February. At a meeting of those interested in the plant the following directors were elected: H. H. Timken, J. G. Obermier and O. J. Strayer, of Canton; G. M. Mather, of Cleveland; L. Pulcher, of Detroit, and Charles Balough, of Springfield. Charles Balough was elected president, Gordon Mather was elected vice-president, and O. J. Strayer, secretary and treasurer. The plant will be near the Aultman group and ground has been purchased. The first building will cost \$75,000 and will be 65 x 300 ft., of reinforced concrete and two stories high.

McGraw Truck Tire Branches

EAST PALESTINE, O., Dec. 27—The McGraw Tire & Rubber Co. has established branches for the distribution of its truck tires in Buffalo, under the supervision of manager of the pneumatic tire department, G. J. Marshall; in Detroit, with headquarters in the Dime Savings Bank building and a service station at 26 Franklin street in charge of G. W. Tiffany; in Kansas City, in charge of C. H. Connelly. The company anticipates the establishment of truck tire branches and service stations in Pacific coast branches.

COX BRANCH MOVES

NEW YORK, Dec. 21—The branch of the Cox Brass Mfg. Co., formerly located at 1777 Broadway, New York city, has been transferred to 1733 Broadway.

BOSTON BLACKING CO. ADDS CAR POLISHES

EAST CAMBRIDGE, MASS., Dec. 27—The Boston Blacking Co., one of the largest manufacturers of polishes and cements in the shoe and leather trade, has entered the automobile accessory field with a complete line of cleaning and polishing preparations for all parts of the car. This company, with factories in nine different countries and with branch offices and warerooms in all the larger cities of the United States, is taking up the question of manufacturing automobile polishes not as an experimental department but as a standard arm of its business. The various polishes will be marketed through the regular channels of automobile jobbers, dealers, etc., and the various merchandise will be put up in pints, quarts and larger quantities for convenient merchandising. Goods are marketed under the trade-mark "Be-Be-Co."

Among the various polishes specially intended for the automobile are: Mohair top dressing, leather top dressing, top lining dye, seat and slip cover cleaner, cushion dressing, metal and body polishes, giving gloss and dull finishes; brass polish, nickel polish, body polish, motor car soap, hand cleaners, and red, white and gray tire paints.

The company has branch factories in Chelsea, Mass., Montreal, Que., England, Germany, France, Austria, Sweden, Italy and Australia, and branch offices and warerooms in all the large cities of the United States.

McIntyre to Build Tractor at \$750

COLUMBUS, O., Dec. 26—The McIntyre Mfg. Co., 172 West Locust street, is arranging to put on the market about Feb. 1 a 12-horsepower gasoline farm tractor which will retail at \$750. The company, which has been making some automobile parts and special machinery, has been experimenting on the new tractor for some time, until now it is announced it is complete. The tractor will be designed both for hauling farm machinery and wagons and to furnish stationary power for farm work. It is mounted on three wheels with the two wheels in the rear. The company has placed contracts for materials and will be ready to make deliveries of its tractor Feb. 1.

Changes in Goodyear Officers

AKRON, O., Dec. 27—A number of changes in the personnel of the Goodyear Tire & Rubber Co. were made public at the annual meeting of the company last week. Secretary G. M. Stadelman, who has been sales manager, was elected a vice-president and will continue as sales manager; T. W. Litchfield, who has been factory manager, was also elected a vice-president. A. F. Osterloh was elected secretary and will also discharge the duties of assistant sales manager. In a Christmas statement to employees, the company made public first details of a plan of retirement awards and also a group insurance plan for all classes of Goodyear workers, both male and female.

Stabestos Should Be Staybestos

NEW YORK, Dec. 27—Due to a typographical error in the half-page advertisement of the Staybestos Mfg. Co., Germantown, Pa., which appeared in the Dec. 22 Before Show Issue of Motor World, the name of the company was inadvertently made to read Stabestos.

RATIFY CHEVROLET INCREASE

NEW YORK, Dec. 24—Stockholders of the Chevrolet Motor Co. yesterday ratified the proposal of the directors of the company to increase the capitalization from \$20,000,000 to \$80,000,000, this step being taken in connection with a plan of that company to take over the controlling shares of the General Motors Co. by means of an exchange of stock. By this plan the General Motors stock, which has been obtained by a syndicate, is to be offered at a ratio of five shares of Chevrolet stock for one share of General Motors common. Under this proposal, between 110,000 and 120,000 shares of General Motors common will be offered.

It is rumored that the increase of stock is a step towards the merger of the two companies. It is stated that Mr. Durant and his associates representing the Du Pont powder and Remington arms interests has secured enough General Motors stock to give them complete control of the company. It is estimated that including the holdings of his associates, Durant controls as much as 60 or 70 per cent of General Motors stock.

General Motors is unaffected by the plan and has nothing to do with it. Certain holders of General Motors stock entertain a proposal to exchange their shares for shares in another company. The remaining General Motors stock remains as at present, the only effect being that the floating supply is much reduced.

Oil Men Oppose Gas Tax

PHILADELPHIA, Dec. 24—The Oil Trade Association of Philadelphia at a recent meeting went on record as opposed to the proposed national tax on gasoline and automobiles.

Coming Events

*Indicates sanction by A. A. A.

- Jan. 4.....New York, Rotary Club of N. Y., Luncheon at 12:30, Imperial Hotel.
- Jan. 5-6.....New York City, S. A. E. Winter Session, Standards Committee Meeting.
- Jan. 7, 8, 10, 11..New York, Meeting National Assn. of Automobile Accessory Jobbers.
- Jan. 20-21.....Detroit, Convention of Garage Owners Assn. of Mich., Hotel Statler.
- Jan. 25.....Chicago, Ill., Annual Convention, Garage Owners' Association of Illinois, Congress Hotel.
- Jan. 26-27.....Chicago, Ill., Annual Convention, Associated Garages of America, Congress Hotel.
- Feb. 21-26.....Countrywide Electric Prosperity Week.
- May 13.....New York City, Sheepshead Bay Speedway race meet.
- May 30.....Indianapolis, Ind., Track race meet.
- June 17.....Chicago, Ill., Speedway race meet.
- June 28.....Des Moines, Ia., Speedway race meet.
- July 4.....Minneapolis, Minn., Speedway race meet.
- July 4.....Sioux City, Ia., Speedway race meet.
- July 15.....Omaha, Neb., Track race meet.
- Aug. 5.....Tacoma, Wash., Track race meet.
- Aug. 13-19.....Chicago, Ill., Elgin road race.
- Sept. 4.....Des Moines, Ia., Track race meet.
- Sept. 15.....Indianapolis, Ind., Speedway race meet.

- Sept. 16.....Providence, R. I., Track race meet.
- Sept. 30.....New York City, Sheepshead Bay Speedway race meet.

THE SHOW CIRCUIT

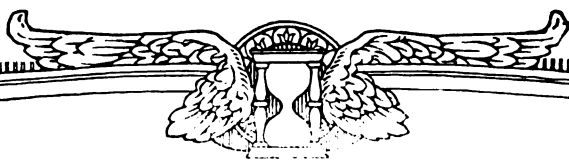
- Dec. 31-Jan. 8..New York, N. Y., Sixteenth Annual National Automobile Show, National Automobile Chamber of Commerce, Grand Central Palace.
- Jan. 1.....Springfield, Mo., Show, Springfield Motor Car Dealers Assn.
- Jan. 3-9.....New York Importers' Salon, Automobile Importers' Alliance, Hotel Astor.
- Jan. 7-13.....Milwaukee, Show, Milwaukee Automobile Dealers, Inc., Auditorium.
- Jan. 8-15.....Philadelphia, Pa., Show, Philadelphia Automobile Trade Assn., Convention Hall.
- Jan. 8-15.....Cleveland, O., Show, Wigmore Coliseum, Cleveland Automobile Show Co.
- Jan. 10-15.....Fort Wayne, Ind., Show, Fort Wayne Auto Trade Assn.
- Jan. 10-15.....Buffalo, N. Y., Show, Buffalo Automobile Dealers Assn., Broadway Auditorium.
- Jan. 10-15.....New Bedford, Mass., Show, State Armory.
- Jan. 10-15.....Poughkeepsie, N. Y., Show.
- Jan. 14-22.....Dayton, Dayton Automobile Dealers Assn. Show, Delco building.
- Jan. 15-22.....Detroit, Mich., Show, Detroit Automobile Dealers Assn.
- Jan. 17-19.....Erie, Pa., First Annual Show, Erie Automobile Dealers Assn.
- Jan. 17-22.....Rochester, N. Y., Show, Exposition Park. C. A. Simmons, manager.
- Jan. 17-24.....Wilmington, Del., Second Annual Show, Wilmington Automobile Trade Assn., Hotel Du Pont. J. H. Nixon, chairman.
- Jan. 18-22.....Baltimore, Md., Show, Baltimore Automobile Dealers Assn., Fifth Regiment Armory.
- Jan. 18-29..... Fargo, N. D., Third Annual Gate City Auto Show, J. I. Case Building.
- Jan. 22-29.....Montreal, Can., Show, Montreal Automobile Trade Assn., Ltd. T. C. Kirby, manager.
- Jan. 22-29.....Chicago, Ill., Show, National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 22-29.....Montreal, Can., Show, Montreal Automobile Trade Assn., Almy's Building.
- Jan. 23-30.....Portland, Ore., Sixth Annual Show, Portland Automobile Dealers Trade Assn.
- Jan. 24-29.....Scranton, Pa., Sixth Annual Show, Pleasure Cars, Town Hall. Hugh B. Andrews, manager.
- Jan. 25-29.....Lancaster, Pa., Show, Conestoga Park Pavilion.
- Jan. 29-Feb. 5..Columbus, O., Show, Columbus Automobile Show Co., Memorial Hall.
- Jan. 29-Feb. 5..Minneapolis, Minn., Winter Show, Minneapolis Automobile Trade Assn., National Guard Armory.
- Jan. 31-Feb. 1-2.Scranton, Pa., Commercial Car Show, Town Hall. Hugh B. Andrews, manager.
- Jan. 31-Feb. 5..Fall River, Mass.; Show: Raymond C. Borden, Mgr.: State Armory.
- Feb. 2-5.....Buffalo, N. Y.; Show, Auditorium, Buffalo Automobile Mfrs. & Dealers Assn.
- Feb. 7-12.....Kansas City, Mo., Show, Kansas City Motor Car Dealers Assn., J. I. Case Bldg.
- Feb. 8-11.....Grand Forks, N. D., Show, Oratorio Society's Auditorium; Grand Forks Automobile Dealers. H. W. Sims, Secy.
- Feb. 9-12.....Peoria, Ill., Show, Peoria Automobile & Accessory Assn., Coliseum.
- Feb. 12-19.....Hartford, Conn., Show, Hartford Automobile Dealers Assn., State Armory.
- Feb. 14-19.....Des Moines, Ia., Seventh Annual Show, Des Moines Automobile Dealers Assn., Coliseum.
- Feb. 19-26.....Newark, N. J., Show, First Regiment Armory. C. L. Fitzgerald, manager.
- Feb. 20-27.....Grand Rapids, Mich., Seventh Annual Show, Grand Rapids Auto & Accessory Dealers Assn., Klingman Bldg.
- Feb. 21-26.....Portland, Me., Show, Exposition building.
- Feb. 21-26.....Bridgeport, Conn., Third Annual Show, State Armory. B. B. Steiber, manager.
- Feb. 21-26.....Louisville, Ky., Show, Louisville Automobile Dealers Assn., Kentucky First Regiment Armory.
- Feb. 21-26.....Omaha, Neb., Eleventh Annual Show, Omaha Automobile Assn. Clark G. Powell, manager.
- Feb. 21-26.....Syracuse, N. Y., Show, Syracuse Automobile Dealers Assn.
- Feb. 21-26.....South Bethlehem, Pa., Show, Coliseum. James L. Elliot, manager.
- Feb. 28-Mar. 4..Paterson, N. J., Fifth Annual Show, Auditorium. Robert A. Mitchell, director.
- Feb. 29-Mar. 4..Fort Dodge, Ia., Fifth Annual Show, Fort Dodge Auto Dealers Assn., Terminal Building.
- March 1-7..... Fargo, N. D., Show, Gate City Auto Show Corp. W. M. Ball, manager.
- March 4-11.....Boston, Mass., Fourteenth Annual Show, Boston Automobile Dealers Assn., Boston Commercial Vehicle Assn.
- Mar. 8-11.....Davenport, Ia., Show, Tri-City Davenport, Rock Island & Moline; Tri-City Automobile Trade Assn.
- March 8-11.....Mason City, Ia., Second Annual Show, Mason City Auto Show Co., Armory.
- March 8-15.....Brooklyn, N. Y., Show, Brooklyn Motor Vehicle Dealers Assn.
- Mar. 21-25.....Deadwood, S. D.; Third Annual Black Hills Auto Show; Auditorium.
- Mar. 28-Apr. 3..Manchester, N. H., Show, under auspices of Couture Bros.; Academy.

Motor Car Securities Quotations

	Dec. 23, 1914	Dec. 23, 1915
	Bid	Asked
Ajax Rubber Co. (new).....	85	100
Aluminum Castings, pfd.....	85	100
Chalmers Motor Co., com.....	88 1/2	140
Chalmers Motor Co., pfd.....	92 1/2	125
Chevrolet Motor Co., com.....	77 1/2	125
General Motors Co., com.....	76 1/2	475
General Motors Co., pfd.....	89	117
B. F. Goodrich Co., com.....	23	73
B. F. Goodrich Co., pfd.....	91	112 1/2
Goodyear Tire & Rubber Co., com.....	190	335
Goodyear Tire & Rubber Co., pfd.....	102	113
International Motor Co., com.....	14	27
International Motor Co., pfd.....	14 1/2	27
Kelly-Springfield Tire Co., com. (old) 65	68	290
Kelly-Springfield Tire Co., com. (new) ..	72	74
Kelly-Springfield Tire Co., 1st pfd.....	75	95
Kelly-Springfield Tire Co., 2nd pfd.....	93	124 1/2
Maxwell Motor Co., com.....	14	76
Maxwell Motor Co., 1st pfd.....	41 1/2	102
Maxwell Motor Co., 2nd pfd.....	16	55 1/2
Miller Rubber Co., com.....	23 1/2	243
Miller Rubber Co., pfd.....	110	111
Packard Motor Car Co., com.....	100	189
Packard Motor Car Co., pfd.....	90	103
Palge-Detroit Motor Car Co., com.....	35	36
Peerless Motor & Truck Corp., com.....	25	30
Portage Rubber Co., com.....	80	90
Portage Rubber Co., pfd.....	80	90
Regal Motor Co., pfd.....	17	20
Reo Motor Truck Co., com.....	104 1/2	115 1/2
Reo Motor Truck Co., pfd.....	21 1/2	23
Stewart-Warner Speed. Corp., com.....	51	85 1/2
Stewart-Warner Speed. Corp., pfd.....	98	101
Studebaker Corp., com.....	30 1/2	167
Studebaker Corp., pfd.....	85	112
Swinehart Tire & Rubber Co., com.....	69	87
U. S. Rubber Co., com.....	51	54 1/2
U. S. Rubber Co., 1st pfd.....	100	102
White Motor Co. (new).....	84	85 1/2
Willis-Overland Co., com.....	92	112
Willis-Overland Co., pfd.....	92	114

*Par value \$10; all others \$100 par value.

†Ex-Dividend.



The Waltham Exhibit Includes The Largest Watch In The World And The Smallest Made In America

You will find a visit to the Waltham booth at the New York show well worth while. The giant watch alone makes it worth the trip. This watch is valued at \$10,000.

You will also enjoy seeing our extraordinary line of automobile clocks, the first ever designed especially for the purpose.

While you are at the Show be sure to notice the cars which are equipped by the makers with Waltham automobile clocks. These manufacturers pay a compliment to both their cars and their customers by installing the Waltham timepiece.

The Waltham exhibit will be found in Booth D-54, on the fourth floor of the Grand Central Palace, opposite the south elevator.

The following cars use our clocks as regular equipment:

Brewster	Marmon
Cadillac	Owen Magnetic
Cole	Packard
Crane	Pierce-Arrow
Detroit	Rauch & Lang
Franklin	Rolls-Royce
Haynes	Russell-Knight
Jeffery	Simplex
Locomobile	Stearns
Lozier	Winton

The following companies equip *all* their enclosed bodies with our timepieces:

Brewster	Locomobile
Cadillac	Packard
Franklin	Pierce-Arrow
	Stearns

Waltham
Watch Company
Waltham
Mass.



When writing advertisers please mention Motor World

Why 'Usco'—

*A Wonderful
New Tire*

Make something wonderfully good and you say, "This is mine"—you call it by your name.

That is exactly our case—

We have made a tire so fine, so sturdy, so **responsible** that we want it known as ours. Hence the name 'USCO.'

United States
'Usco' Tread
Tires

Because we have put our name on this tire—because its success is now a matter of business pride, of business honour.

We pledged ourselves to see that it 'made good',

And it **has**.

Dealers who sell the best tires—sell 'USCOS'.

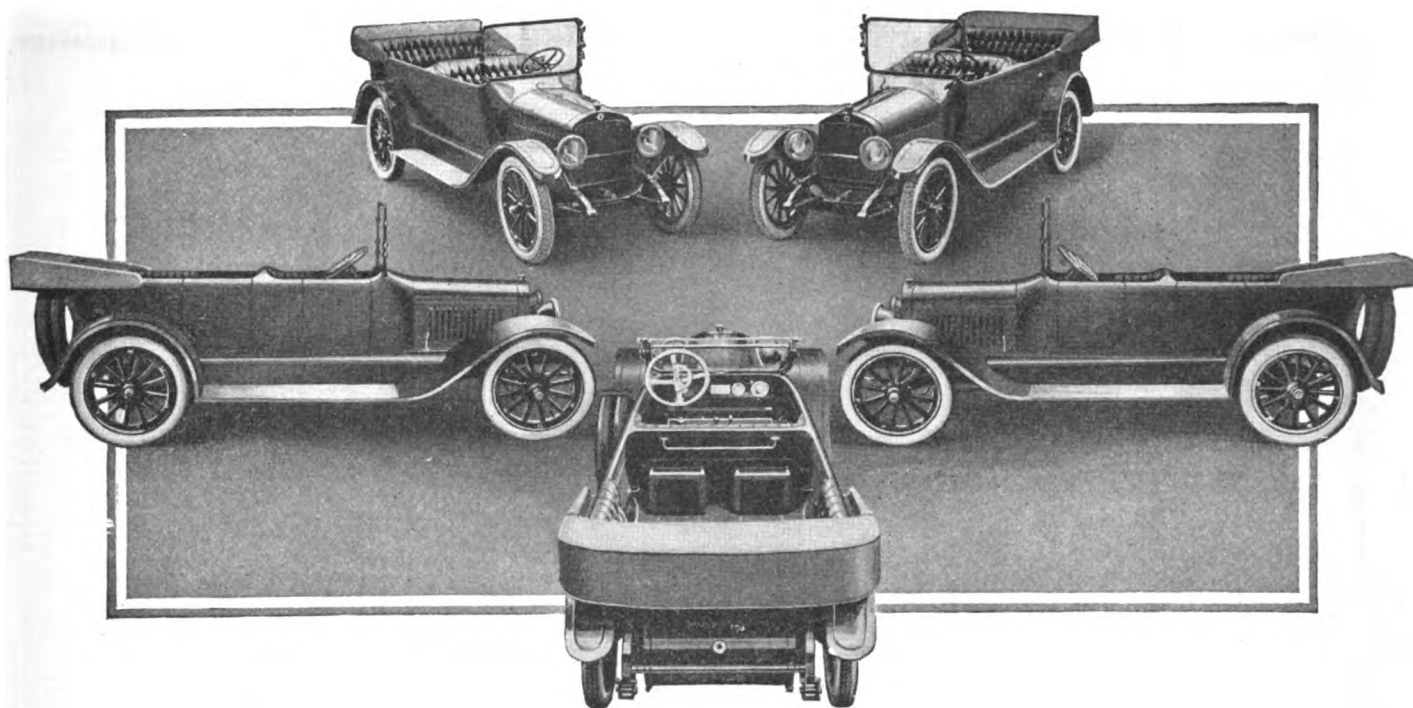
These dealers tell us that 'USCOS' are making money for them.

And you?



United States Tire Company
Individualized Tires

'Usco' Tread, 'Chain' Tread, 'Nobby' Tread, 'Royal Cord', and 'Plain' Tread



STANDARD

The production of Automobiles by the Standard Steel Car Company is a logical development.

Regularly engaged in designing and building the steel transportation equipment, of all kinds, which has done so much for the safety and comfort of the traveling public—controlling all necessary facilities, in both men and material—and with an organization trained along the lines, primarily, of determining the best thing to do, and then the way of doing that best thing repeatedly and uniformly—the production of Automobiles came nearly as a natural sequence.

About four years ago the Standard Steel Car Company commenced to use its resources and facilities specifically in the designing and manufacturing of Automobiles—its progressive steps being directed by careful study and analysis under laboratory conditions, supplemented and verified by service tests.

One year ago, having foreseen and experimented with the eight-cylinder type of motor, the Standard Steel Car Company brought forward its "Standard Eight"—one of the few of its kind which had been offered to the public.

In now announcing the 1916 Standard Eight, we can state that it has been born of thorough and extensive experience, under all-varying conditions of sufficient severity to detect any defects or oversights in the 1915 product—and with the

happy conclusion that no changes have been indicated as necessary in the mechanical features, and only such changes in body construction as are required to meet the latest demands.

It is of the greatest importance that the automobile purchaser should know that he can depend upon the representations and workmanship of the manufacturer, as well as upon the sort of treatment and service he will receive.

The reputation of the Standard Steel Car Company is in itself assurance that the purchaser of its products will not regret his confidence in the people he deals with, nor be deceived or disappointed in what they furnish him.

A 1916 seven-passenger "Standard Eight," at \$1,735, is not an experiment with an unknown quantity—but is, rather, the investment of money in an article of proven merit and reliability, produced by people who know what they are doing and have the resources to do what they know should be done.

Among the features of appealing interest and importance of "The Standard Eight" are its light weight, wedge-shaped frame, staggered cylinders, double universal (anti-skid) drive of the Hitchkiss type, the force-feed oiling system, etc.

From all viewpoints the Standard Eight excels. We are exhibiting at the New York and Chicago Automobile Shows.

Cabinet sized photographs, full specifications, and details of our new sales plan will be furnished upon request.

STANDARD STEEL CAR CO. PITTSBURGH, PA.

Duffy Motors Corporation, 1895 Broadway, New York City.
Crane Auto and Garage Company, 442-450 Potter Ave., Providence, R. I.
T. C. Woodin, 307 Reliance Building, Kansas City, Mo.

DISTRIBUTORS

Eastern Motors Corporation, 1634 Chestnut Street, Philadelphia, Pa.
F. C. Van Deerhoof, 3765 Grant Boulevard, Pittsburgh, Pa.
C. E. Trace, Apartment Garage, Baltimore, Md.



When writing advertisers please mention Motor World

Good Roads Help Motor Truck Dealers

Single handed, we have started a logical, virile, campaign for the betterment of road conditions.

For the development of good roads is a big step towards the future development of the motor truck industry. And we work continuously with an eye to the years ahead.

Our efforts already have produced big, lasting results.

We have vitally interested thousands of state, county and municipal commissioners in this big propaganda. Business men—big and little—in all sections of the country are giving us their hearty co-operation.

This activity is not only helping us—it is helping our distributors.

And the Garford national selling organization is being continually strengthened by the addition of substantial, wide-awake dealers who look for future growth as well as present sales.

If you are a dealer of this type write to us. The Garford proposition will surely interest you.



A few months ago S. M. Williams, Sales Manager of the Garford Motor Truck Company, distributed several thousand copies of his booklet "Roads—Their Influence upon Economic and Social Conditions," among county officials, engineers, prominent business men and educators. Since then requests have been received from Good Roads Associations, Chambers of Commerce, and influential men for over 200,000 copies of this booklet for distribution in good roads campaigns in all sections of the country. Your copy will be mailed on request.

Please Address Dept. 104.

Garford Motor Truck Company, Lima, Ohio

Manufacturers of Trucks of $\frac{3}{4}$, 1, $1\frac{1}{2}$, 2, 3, 5 and 6 ton capacity

When writing advertisers please mention Motor World



The New **SERIES 17** Cars

Studebaker for the **FIFTH** time leads the industry

The SERIES 17 line is the most complete that any manufacturer has ever offered. There are 9 pleasure cars in all—3 on the 4-cylinder chassis and 6 on the 6-cylinder chassis—comprising open cars and a variety of closed cars that gives the Studebaker Dealer a car for every prospective buyer's taste.

There is in addition a series of Commercial Cars that offer GREAT sales possibilities — three of the half ton size that have already won such national popularity and three new TON capacity trucks.

But the sensational thing of the entire series of cars is the amazing VALUES that they represent. Never in the history of the entire industry have such values as these been placed upon the market at such LOW prices.

And coming in a season like this, when prices of raw materials are rising daily, the new SERIES 17 SIX, with added new features and priced at \$1050, and the new SERIES 17 FOUR, with the same new features, *reduced in price* to \$845, are most astonishing achievements even for a manufacturer with Studebaker's resources and unexcelled manufacturing facilities.

With the new SERIES 17 cars, every Studebaker Dealer now has before him a wonderful opportunity for BUILDING up a lasting business—and for greatly increasing his winter sales with the absolute assurance of getting cars thro' the Spring when he wants them most—and assurance, also, of a steady sale and PROFIT the year 'round.

Over 4500 dealers now making money selling Studebaker cars. Merchants all over the country are dropping other lines to become Studebaker dealers, and the same opportunity is offered to other dealers and merchants. Write for further information.

STUDEBAKER

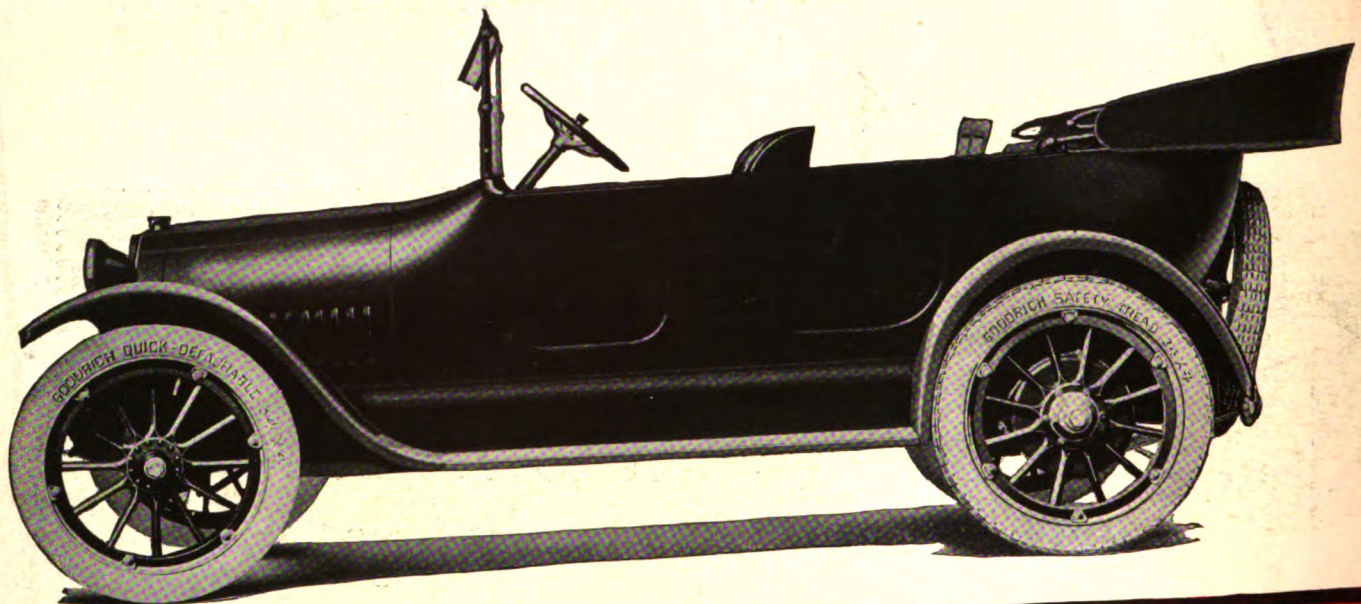
South Bend, Ind.

Detroit, Mich.

Walkerville, Ont.

Address all correspondence to Detroit.

FOUR—40 horse-power—7 passenger—\$845



Imagine the selling opportunities a Dealer has with a car like this!

Last year, this Studebaker 4-cylinder car at \$885 was the sensational **VALUE** of the season. This year, the price has been **REDUCED** to \$845—the same car with several added features.

Think what it means to be associated with a manufacturer whose financial resources and unexcelled manufacturing organization makes it possible to produce a car of such quality to sell at \$845.

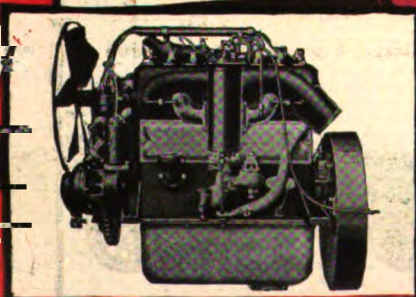
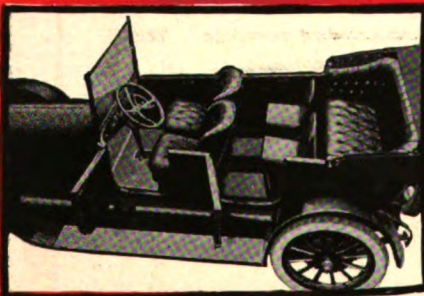
This **SERIES 17 FOUR** has the same **FORTY** horse power motor that made it the **POWER** Car of last season. It has the same **SEVEN**-passenger capacity. It has the same grace of line and luxury of finish—the same full equipment and the same high quality throughout.

The gas tank has been moved to the rear of the car, thus gaining much more room for the driver. We have adopted the design of one of Europe's most expensive cars for the front seats—**DIVIDED** them—made them

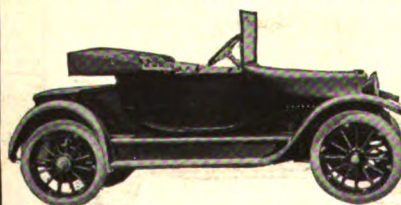
adjustable so that they can be moved to fit the passenger's desires.

We have gained more room in the tonneau. We have used longer springs of extra resiliency for the upholstery, and of course, the **SAME** high-grade, hand-buffed, semi glazed leather. We have rearranged the instruments on the dash, making them even more convenient and lighted them by a new, indirect system of illumination.

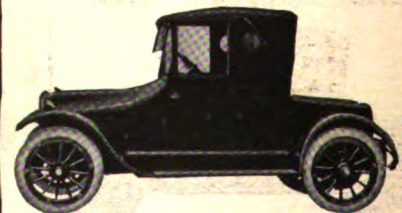
We have redesigned the windshield, overlapping the plates to give complete protection at all times. The fenders are deeper and richer.



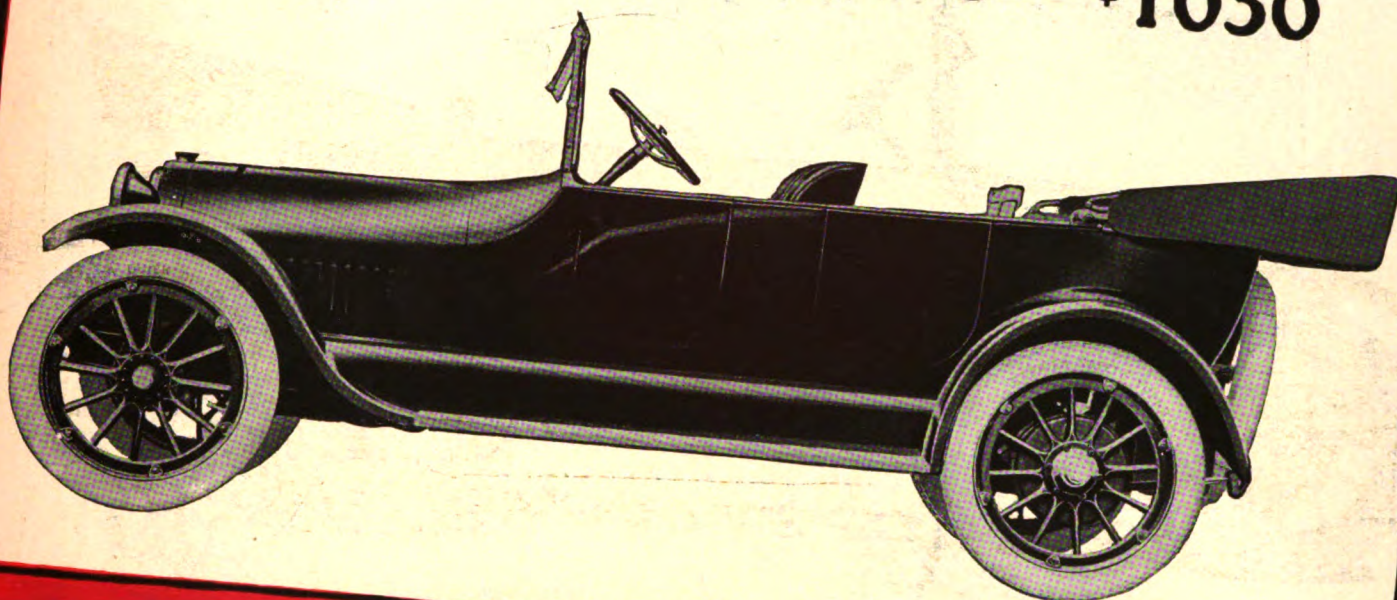
Roadster, 3 passenger - \$825



Landau, 3 passenger - \$1145



SIX — 50 horse-power — 7 passenger — \$1050



—and this SIX at \$1050: Think of its possibilities in your territory!

Last year it was the sensation of the season—the **ONLY SEVEN**-passenger, 6-cylinder car with a $3\frac{7}{8}$ -inch bore x 5-inch stroke, **FIFTY** horse power motor ever offered in America or Europe for less than \$1450.

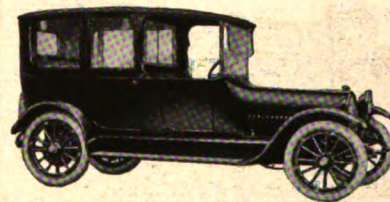
It was \$400 ahead of any other **SIX** that began to rival it in **POWER**, size or quality. And it swept the country. It was **THE** value of the year.

This year it has the **SAME** powerful motor, the **SAME** seven-passenger capacity and it costs the **SAME** price—\$1050—in spite of the greatly increased cost of raw materials.

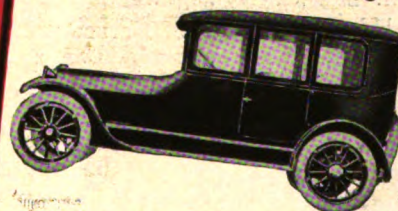
This car also has added features such as—gasoline tank removed to the rear—adjustable, **DIVIDED** front seats—new overlapping windshield—new arrangement of instruments on dash with indirect lighting system—deeper fenders, etc.

Think of the opportunities such a car offers!

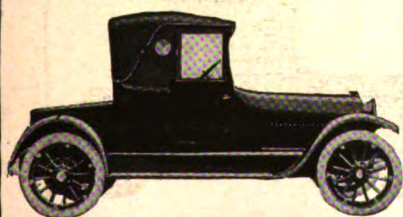
Limousine, 7 passenger \$2500



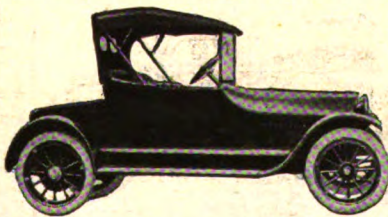
Sedan, 7 passenger - \$1675



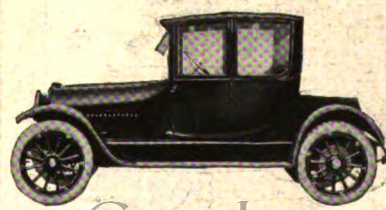
Landau, 3 passenger - \$1350



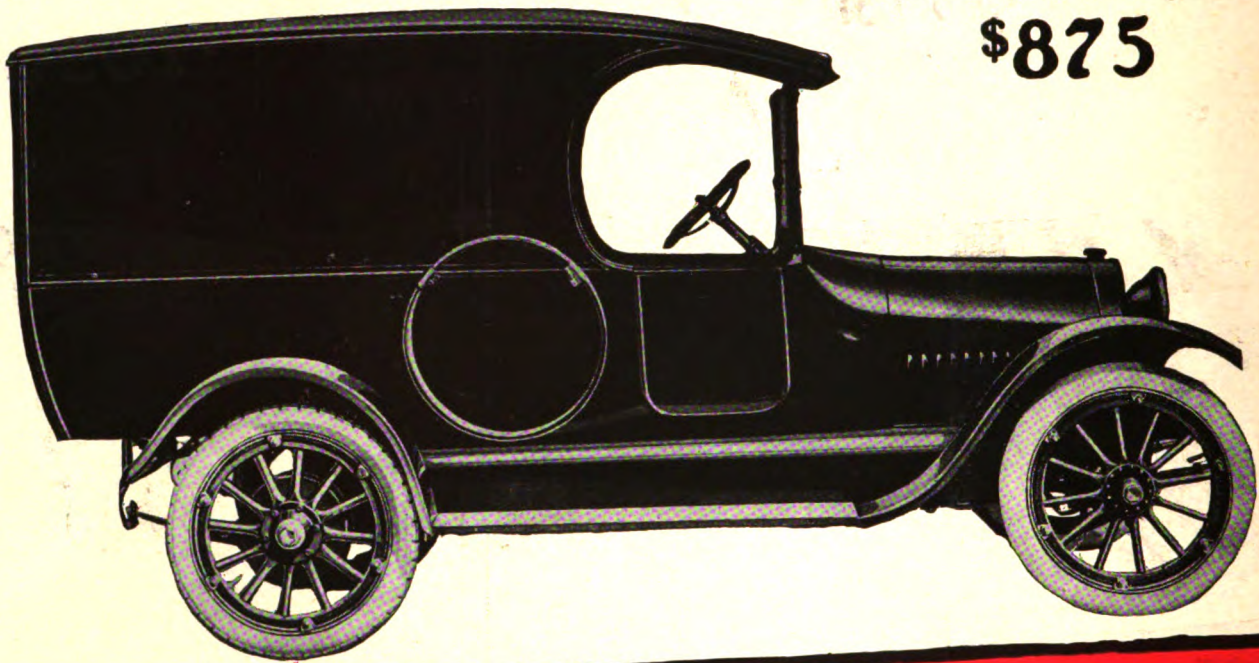
Roadster, 3 passenger \$1025



Coupe, 4 passenger - \$1600



Panel Delivery Car \$875



And now a COMPLETE Line of Commercial Cars that offers one of the most amazing opportunities of the industry to the progressive dealer

It is impossible to overestimate the opportunities that the Studebaker SERIES 17 line of Commercial Cars offers to the 'progressive' dealer. With national increase in the use of motor vehicles for retail delivery, and the innumerable other commercial purposes, the field is widening daily. And the surface has just been scratched. All the commercial cars now in use do not represent 1% of the possibilities that lie before the men who get into this side of the industry early.

Studebaker offers a remarkable opportunity. With its 64 years' experience in manufacturing delivery vehicles of every nature, in studying commercial vehicle problems—and with its GREAT experience of manufacturing more than 207,000 motor pleasure vehicles, Studebaker offers a series of cars that are RIGHT both from the user's needs and from the mechanical side.

This line comprises 6 models—3 of the half-ton size and 3 new models of ton capacity. Already the half-ton vehicles have won a national popularity. There are more than 20,000 of them in daily use the country over. And not only have they proved up in use, but they offer the biggest dollar-for-dollar VALUES in the market.

The Panel Delivery Car at \$875, for instance, is the only car of its price that has a FORTY

h.p. motor, fore doors, electric lights, electric starter. It is the only car at its price combining dome light, gas and oil indicators, leather upholstery, heavily braced crown fenders and pleasure car finish.

It is the handsomest car of its kind on the streets—gives absolute COMFORT to the driver—FULL loading capacity—and is built as Studebaker knows a delivery car must be built to give SERVICE. It is not a pleasure car adapted for commercial use.

This is typical of the VALUE that the other cars in the Commercial series offer. No progressive Dealer who is seeking to widen and fortify his business can overlook the opportunity this line offers.

And we urge every dealer to write at once for complete information.

STUDEBAKER

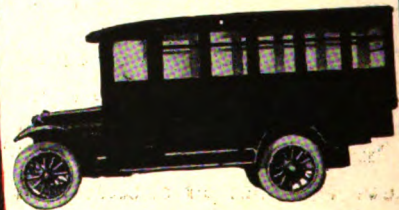
South Bend, Ind.

Detroit, Mich.

Walkerville, Ont.

Address all correspondence to Detroit

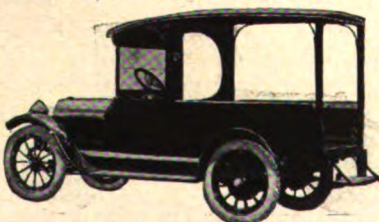
Bus, 16 passenger, - \$1400



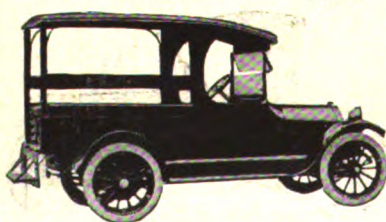
One-Ton Stake Body - \$1250

Photograph not ready at time of going to press. Write for complete information.

Open Express - - - \$350



Station Wagon - - - \$875



One-Ton Express - - \$1200

Photograph not ready for publication when this journal went to press. Full details on request.

What's the Answer?

Why have

EISEMANN

MAGNETOS

been adopted as standard equipment
by 108 manufacturers, including :

TRUCKS

Adams Adams Truck, Fdy. & Mch. Co.
Aetna Acme Motor Truck Co.
Avery Avery Company
Barker C. L. Barker
Bingham The Bingham Mfg. Co.
Burford H. G. Burford Co.
Acme Cadillac Motor Truck Co.
Little Giant Chgo. Pneumatic Tool Co.
Clinton Clinton Motor Car Co.
Commerce Commerce Motor Car Co.
Continental Continental Truck Co.
Corbitt Corbitt Automobile Co.
Dart Dart Mfg. Co.
DeKalb DeKalb Wagon Co.
Delahunty Delahunty Dyeing Mch. Co.
Denby Denby Motor Truck Co.
Drednot Drednot Motor Trucks, Ltd.
Duplex Duplex Power Car Co.
Federal Federal Motor Truck Co.
4 Wheel Drive 4 Wheel Drive Auto Co.
Gary Gary Motor Truck Co.
Gay S. G. Gay Co.
G. M. C. Gen. Motors Truck Co.
Hahn Hahn Motor Truck Co.
..... C. F. Hanger Co.
Harvey Harvey Motor Truck Co.
Indiana Harwood-Barley Co.
Howard Robert C. Howard
Hurlburt Hurlburt Mot. Truck Co.
Independent Independent Motors Co.
Kelly Kelly-Springfield M. T. Co.

Kissel Kissel Motor Car Co.
Kosmath Kosmath Co.
Lange Lange Motor Truck Co.
Lewis-Hall Lewis-Hall Iron Wks.
Lippard-Stewart Lippard-Stewart M. C. Co.
Locomobile Locomobile Co. of Am.
Maccar Maccar Truck Co.
Mais Mais Motor Truck Co.
Mogul Mogul Motor Truck Co.
Mohawk Mohawk Motor Truck Co.
Netco New England Truck Co.
Pierce-Arrow Pierce-Arrow Motor Car Co.
Curtis Pgh. Mch. & Tool Co.
Pull-More Pull-More Motor Tr. Co.
Robinson Robinson Fire App. Co.
Robinson Robinson Motor Truck Co.
Schacht G. A. Schacht Mot. Tr. Co.
Selden Selden Motor Vehicle Co.
Service Service Motor Car Co.
Signal Signal Motor Car Co.
Standard Standard Mot. Tr. Co.
..... Standard Oil Co.
Stegemann Stegemann Mot. Car Co.
Sterling Sterling Motor Truck Co.
Stewart Stewart Motor Corp.
United United Motor Truck Co.
Universal Universal Mot. Service Co.
Walter Walter Motor Truck Co.
White White Company
Wichita Wichita Falls Motor Co.
Superior E. G. Willingham's Sons
Wilson J. C. Wilson Co.
Witt-Will Witt Will Co.
..... Niles Motor & Mfg. Co.

TRACTORS

Bates Machine Co.
Bear Tractor Co.
C. L. Best Gas Traction Co.
Buckeye Manufacturing Co.
Hoke Tractor Co.
Hume Mfg. Co.
Geo. S. Jacobs
Lawtor Tractor Co.
Morton Truck & Tractor Co.
Peoria Tractor Co.
Perrett Tractor Co.
Sweeney Tractor Co.
Three-Way Prism Co.
Wolf Tractor Co.
Yuba Construction Co.
Cleveland Horseless Farm Machinery Co.
Kansas City Hay Press Co.

PLEASURE CARS

Abbott	Locomobile
Apperson	Lozier
Dodge	National
Franklin	Simplex
Kissel	

ALSO

17 Miscellaneous, including Gasoline Locomotives, Stationary Engines, Mining Machinery, etc.

There Must Be a Reason?

The Eisemann Magneto Company

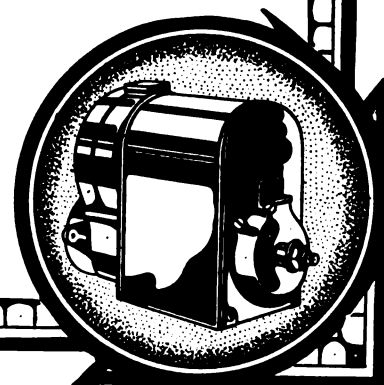
Sales and General Offices:

32-33rd Street, Brooklyn, N. Y.

New York,
245 West 55th Street

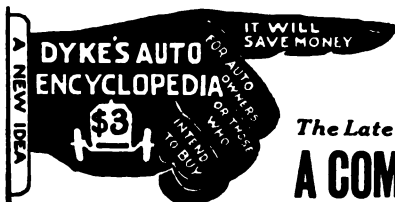
Indianapolis, Ind.,
415-417 N. Capitol Ave.

Detroit, Mich.
802 Woodward Ave.



When writing advertisers please mention Motor World

DYKE'S AUTOMOBILE & GASOLINE ENGINE ENCYCLOPEDIA \$3.00



Revised and Enlarged Edition of This Book

NOW READY

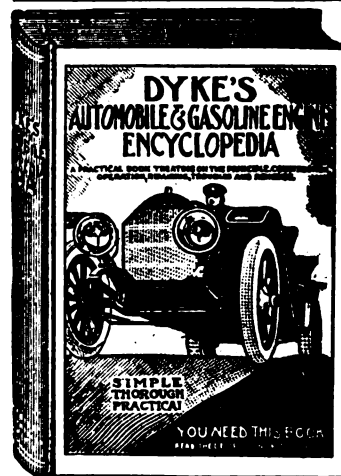
(Fourth Edition)

Entirely Rewritten—Improved Illustrations.

The Late Edition Is Improved At Least One Hundred Per Cent.

A COMPLETE FORD INSTRUCTION ADDED

A Simplified Treatise. Technical Subjects Brought Down to a Non-Technical Basis.



with detailed instructions on the construction, repairs, assembling, disassembling, testing and recharging magnets. In fact every detail a repairman or owner ought to know. Fully illustrated with Mr. Dyke's original simplified illustrations.

Many New Subjects Have Been Added To This Book;

for instance, the subject of

Six, Eight and Twin Six Engines, explaining the principle, construction, degrees of cranks, firing orders, etc., simplified Electric Starters, Generators and Lighting Systems—up-to-date and simplified—how to care for and adjust.

Dodge, Atwater-Kent and all leading ignition systems—simplified.

Valve Timing and Ignition Timing—simplified so a ten-year-old boy can understand.

Trucks, Tractors and many other new subjects added.

Repairing—This subject has been greatly improved and enlarged—everything you want to know from building and equipping a garage for home or business to repairing and adjusting.

Digest of Troubles—You will understand how to diagnose troubles by a process of elimination, not by guesswork.

Every detail of every part of a car is explained, the fundamental principle is first learned, then the variance of construction. Under the subject of Repairing and Adjusting it will tell you how to adjust and care for each part.

Sometimes we are asked, "How do you teach all about cars?" In reply to this will state: If you had before you all the cars made, you would find about three different principles of construction of parts—we teach you the variance of these principles of construction after you first learn the principle.

Step by step, the book takes you through engine principle, valve timing, ignition and ignition timing, carburetion, etc., then the electric systems of all kinds; operating a car, repairing, etc.

Easy to Read and Understand

Mr. Dyke's books are simplified—easy to read and understand—fully illustrated—in fact, the illustrations almost tell the meaning without the use of the text.

The Index is very complete; any trouble, remedy or repair can instantly be located. A Dictionary of motoring terms is also provided.

RECOMMENDATIONS

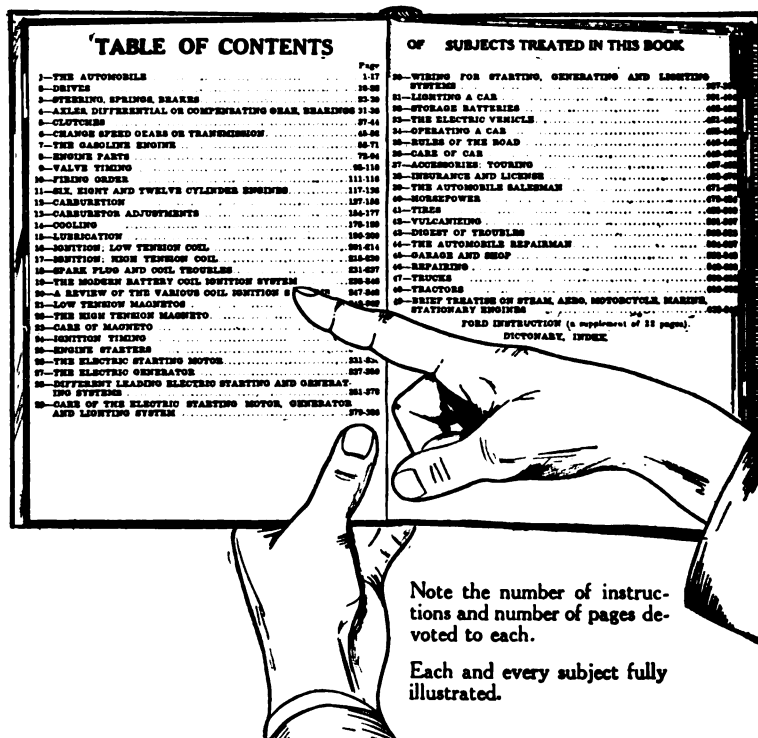
Elwood Haynes, Chas. Duryea, Lord Montagu of London, founder of Brooklands tracks and member of the House of Lords; Elbert Hubbard (deceased), Barney Oldfield, each contributed a letter of recommendation of the value of this book.

The book is sold by forty automobile schools from Maine to California.

ONE HUNDRED THOUSAND PURCHASERS OF DYKE'S BOOKS SAY IT IS THE MOST COMPLETE, PRACTICAL, SIMPLIFIED BOOK PUBLISHED.

—for fifteen years Mr. Dyke (better known as "Dr. Dyke of St. Louis") has been publishing automobile books; he published the first practical one in America.

—for eighteen years he has been connected with the Auto industry, having originated the first Auto supply business and manufactured and marketed the first constant level type carburetor in America. He also designed and built several early experimental automobiles—both gasoline and electric.



Note the number of instructions and number of pages devoted to each.

Each and every subject fully illustrated.

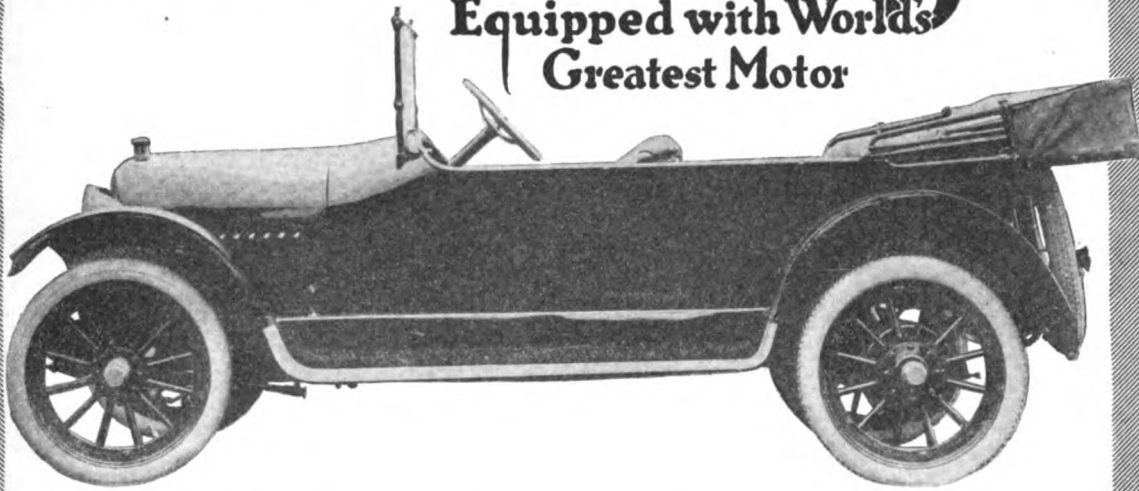
Address all orders to Book Department

The Motor World Publishing Co., 239 W. 39th Street, New York

When writing advertisers please mention Motor World

Moline-Knight

Equipped with World's
Greatest Motor



First Choice of *Motor-Wise* Buyers

The prospective buyer who knows his motor car, knows the motor. The heart of the car is his first consideration. The motor-wise buyer knows that he must depend on the motor whenever his car is in motion. On the success of the motor, on its reliability, durability and stamina, depends the usefulness of the car he is about to own.

The sleeve valve motor of the Moline-Knight is established supreme.

It is superior in theory, fact and test. Inspection leaves but satisfaction and confidence in the mind of every prospective customer who understands, and explores beneath the hood.

Specifications

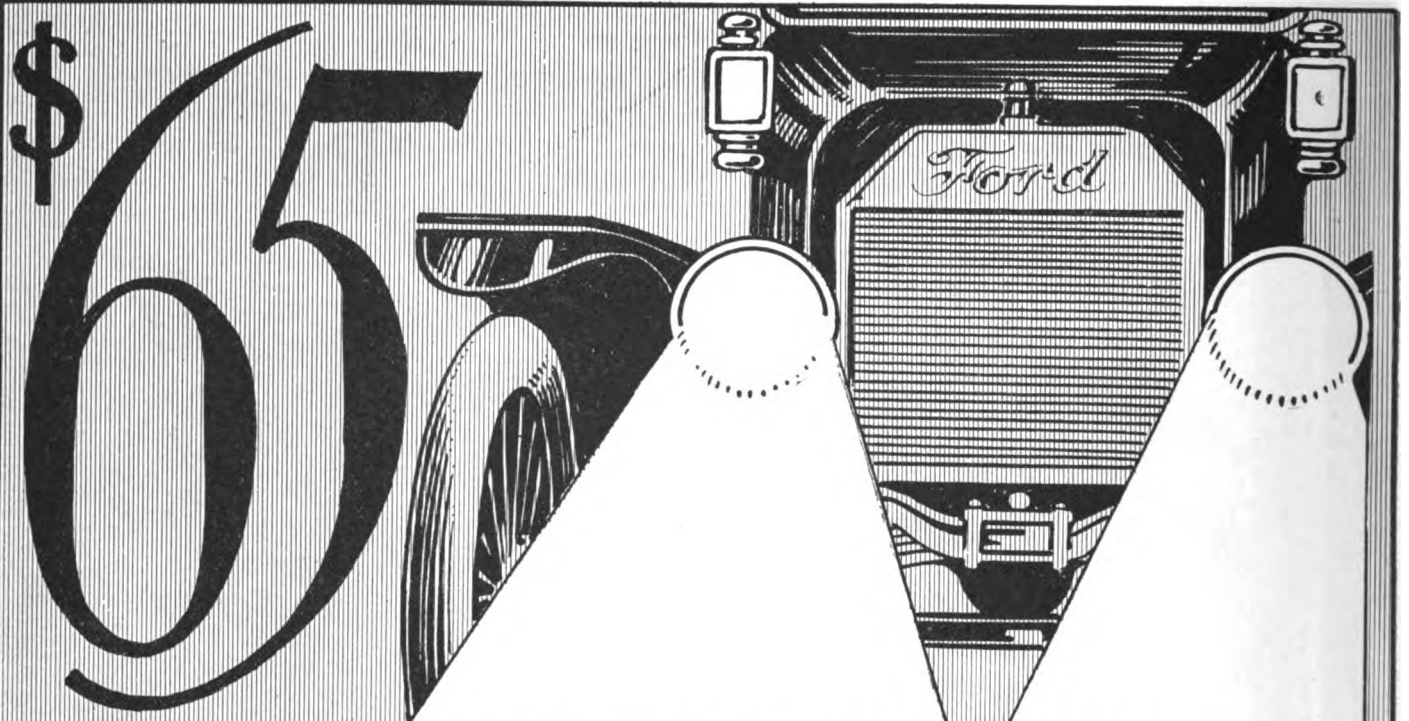
Weight, 2896 lbs., filled with gas, oil and water.
118-in. wheelbase.
3 $\frac{3}{4}$ -in. bore.
5-in. stroke.
40 horsepower.
34 x 4-in. tires.
Selective 3-speed transmission.
Center control. Left-hand drive.
Force feed lubrication.
Complete electric equipment.
Connecticut high tension ignition.
Worm and sector steering gear.
Floating spiral bevel gear rear axle.
5 passenger touring car. 2 passenger roadster.
Complete equipment.
Price, \$1,375, f.o.b. factory.

After which, attention to the perfectly appointed, easy-riding, modish body and complete equipment, places for him the entire car in the class of its motor. The Moline-Knight, equipped with the World's Greatest Motor, is the World's Greatest Motor Car, for motor-wise buyers of 1916.

Dealers—A Moline-Knight contract means a year of success and bigger profits. Write for convincing details.

Moline Automobile Company
East Moline, Illinois

When writing advertisers please mention Motor World



SPLITDORF-APELCO

ELECTRIC STARTING AND LIGHTING SYSTEM

FOR FORDS

At the Automobile Show

SPACE C-61-62—Third Floor

The best and latest in electric starting
and lighting devices.

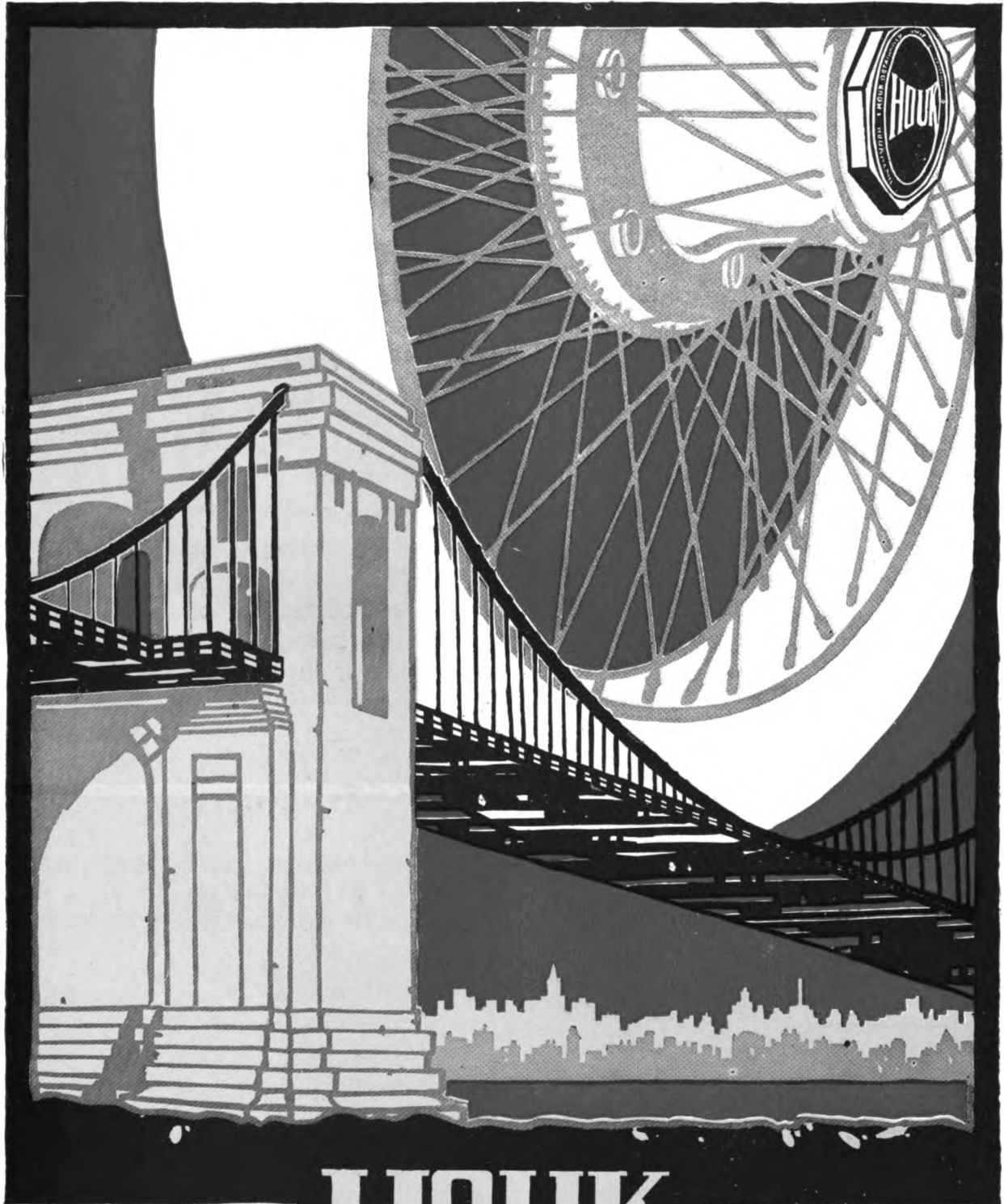
Splitdorf Electrical Company
The Apple Electric Company

Factories: NEWARK, N. J.

(All SPLITDORF-APELCO features are fully covered by patent or patents pending)

When writing advertisers please mention Motor World

A YEAR OF MARVELOUS GROWTH

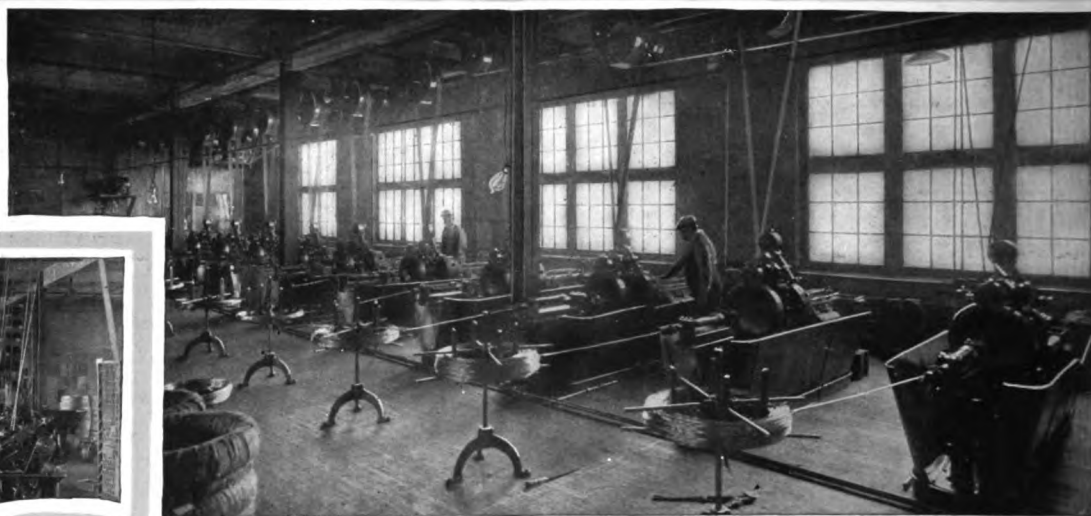


If all the Hough wheels now in use were made into one huge wheel, its size would dwarf man's biggest creations.

HOUGH
QUICK-CHANGE
WIRE WHEELS

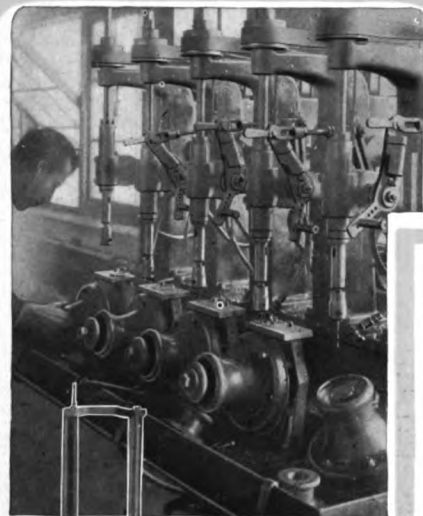
For light weight and supreme strength, nothing represents greater skill or ingenuity than the Suspension Bridge. The Hough Wire Wheel is built on the same principle.

Nipple Making
Machines



Spoke Making Machines

Hub Shell
Department



be conveniently accomplished without crowding, and the demand was exactly co-ordinate with that production.

The beginning of 1916 sees the Houk Plant at Buffalo nearly double in size. The machines never stop. Special machines of all sorts have been developed or obtained. New special machines have been completed for assembling in remarkably short time absolutely *true* wire wheels. A very large and modernly equipped enameling department has just been opened, and one entire floor of one of the newer buildings has been turned into a really

19 THE BIG

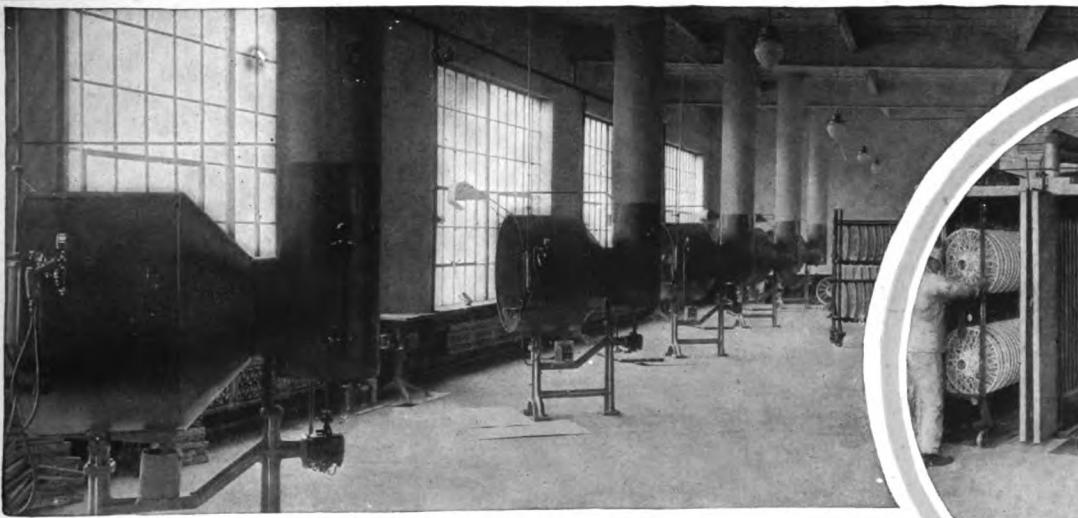
THE MOST important single advance in automobile construction in the year 1915 is the establishment of the unquestionable supremacy of the wire wheel. No other engineering movement has made such conclusive strides as the wire wheel. Nothing has been more positively clinched as a principle of ultimate automobile construction than the Houk Wire Wheel.

For several years the wire wheel has been "a'brewing." To be sure it has been used by sportsmen, motor car fanciers, and race drivers.

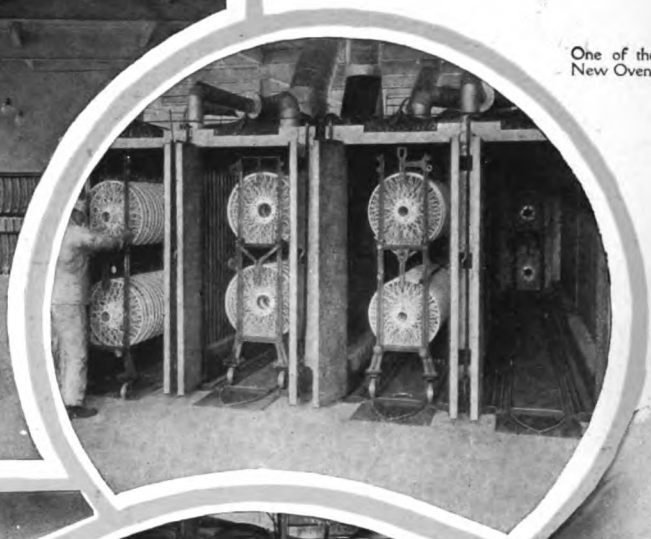
But 1915 experienced a wave of enthusiasm and realization of the advantages of the wire wheel, which spread from coast to coast.

With the advent of 1915 the Houk Plant at Buffalo was working along with the serene conviction that America like Europe *must adopt* the "best engineered" wheels ever devised for motor cars. The production was all that could

Testing the Tensile Strength
of a Spoke at 3200 lbs.



Atomizers in New Enameling Department



One of the New Ovens

15 HOUK YEAR

wonderful department where spokes and nipples are completely produced by automatic machines.

No more activity has been experienced anywhere in the automobile industry than has been found at the Houk Plant where every effort has been made to keep pace with constantly growing demands, the size of which could scarcely have been realized a year ago.

"Wire Wheels" has come to be the slogan of car-maker, car-dealer and car-purchaser. "Wire Wheels" has come to be the mark of distinction on America's best cars and the demand for these wheels coming from the car manufacturer who in turn received his orders from his dealers, has been growing in volume so rapidly that it has strenuously overtaxed our facilities.

Unfortunately, the day this story is written we are behind on our *immediate* deliveries over fourteen thousand wheels. Nevertheless, since that is but a small proportion of our production, this shortage will quickly be wiped out. And our facilities are being expanded so rapidly that we anticipate keeping well apace with this constant increase of orders.

Those who have visited the Houk Plant recently can scarcely understand this phenomenal growth and in fact, it would be unintelligible if it were not for the fact that the American Automobile Industry is on the most prosperous basis, producing more cars than ever, and the American public has awakened to the realization that *wire wheels* are basically essential on a *modern* car.

We certainly cannot supply all the cars made with this carefully built wheel but we *can* supply a large proportion of all the first class cars.



Hub Dept.



Punching Rims



Tightening Up Wheels



Spraying Enamel

The background of the advertisement is a dense, repeating pattern of circular logos for various car brands, each featuring a wire wheel design. The logos include: STUTZ, MARMON, Buick, Oldsmobile, Paige, Chevrolet, Cadillac, Moline Knight, H, Jeffery, National, Haynes, Oakland, Kipling, Stearns, Fiat, and others. Each logo is surrounded by the text "HOUK DETACHABLE WIRE WHEEL" and "HOUK MANUFACTURING CO.-BUFFALO, N.Y.".

Stock or Optional Equipment on America's Finest Cars

TWO years ago the car manufacturer said "The wire wheel! Oh, that's a European idea, our American wooden wheels are every bit as good."

A year ago, he said, "Wire wheels, oh yes, they are indeed a fine article but they cost more money to build and we think our wooden wheels are good enough."

To-day he says, "We aim to build the best motor cars, and knowing the supreme character of wire wheels, we feel that we *must* use them," or, he may say, "Since it cost much more to make wire wheels, we simply can't afford to put them on at the list price, but for a small additional charge we will be delighted to equip the car for you."

To-day, *every* car of any particular engineering value offers Houk Wire Wheels as a *necessity*.

Guaranteed for Three Years

THE THOUSAND DOLLAR CAR 1916-\$850

See This Unusual Show Display

It gives you your first opportunity to see and judge a car—not through the eyes of those who made it—but through the experience of *those who use it*. Hundreds of owners prove beyond a doubt the value of Inter-State power, comfort and beauty. No claims, no promises, no experiments—just honest, convincing *value testimony*.

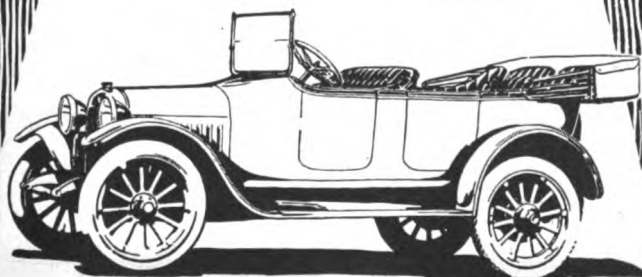


Take No Chances

Dealers and owners both will find here an idea far above any wonderful change in design and construction. If you want to know about *proved value* and *actual assets* for either the man who buys or sells cars—see us.

*Space B-15 New York Show
Balcony Grand Central Palace*

Inter-State Motor Co.
Muncie Indiana



Addressed to YOU,
Good Dealers,
Everywhere.

Gentlemen:—

Three thousand salesmen will assist you—without charge—in selling the Inter-State this season.

Look over your list of prospective buyers—

You don't have to tell them what we claim for this car's value—or what you claim!

Just call in the actual facts on value of 3,000 satisfied, enthusiastic owners of this car.

These unequaled sales facts in the form of definite records are a big feature of our show display.

They form the biggest, strongest and best profit proofs any dealer ever had.

They give you just the reasons you've needed and wished for, to make more sales—bigger business—greater profits.

Don't overlook the help of these 3,000 silent salesmen. Added to Inter-State Power, Comfort and Beauty, they mean the best dealer's proposition in the country. If you can't come to the factory get the evidence at the shows.

The proposition is big enough—strong enough—profitable enough—to merit quick and definite action on your part.

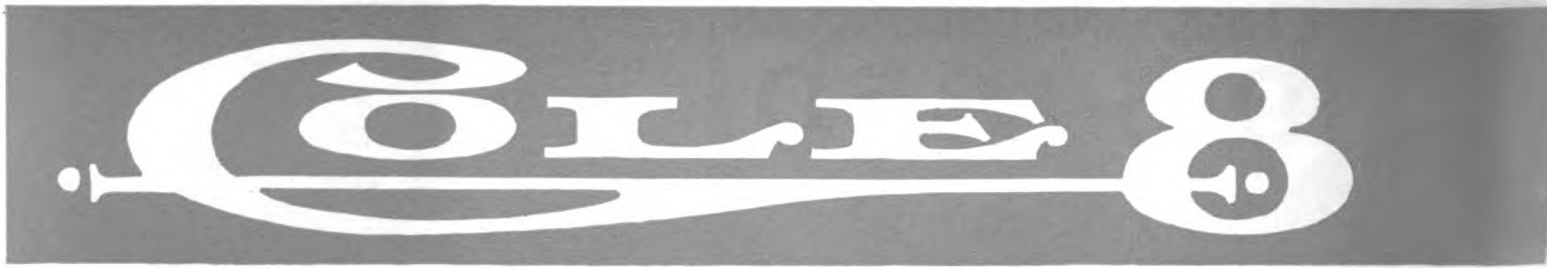
Get the details!

INTER-STATE MOTOR COMPANY,

B. M. Wyman
General Manager.

Muncie, Ind., Dec. 20, 1915.

When writing advertisers please mention Motor World



Permanent Dealer Support

WE can satisfy any dealer who wants to satisfy the public, that the Cole 1916 Dealer Proposition is worth immediate consideration. We want a few more men who are building a permanent business; and there isn't a man or firm of this type that can afford to settle his 1916 plans without investigating the latest Cole 8 at \$1595—the best Eight yet made at any price.

We have not only been building quality automobiles for seven years, but we have built the word "Cole" into a valuable trademark with the public.

We are here for keeps—a permanent business, giving permanent satisfaction to buyers and permanent support and increasing profits to Cole dealers.

If you want to add Cole permanency to your business, drop us a line.

Get the Quality Trade and Profits

There have always been a number of buyers who were anxious to own "a car as good as the Cole" and the new price—\$1595—will make them all good dealer prospects.

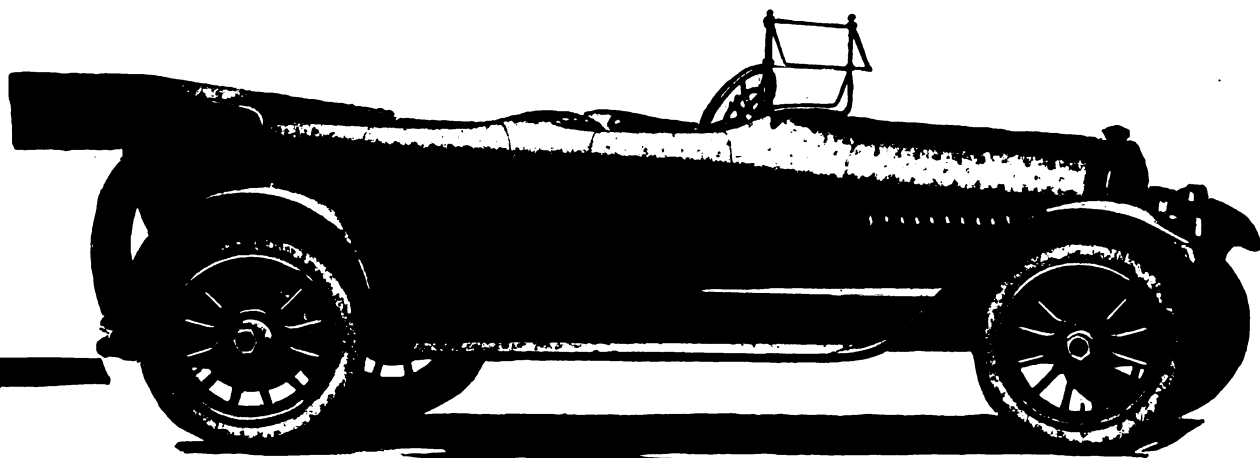
Remember, every red-blooded American really wants to drive a better car than he began with.

When you show him the Cole 8 at \$1595 you are talking to a man whom we have already half-sold.

Write for our 1916 Dealer Proposition. It's new, attractive and may be just what you need to double your present profits.

ADDRESS DEPARTMENT B

Now \$1595



Model 860—Standard Touring Car

NOTE the strikingly-beautiful body, with its full-flowing lines and center wave effect. The disappearing auxiliary seats are concealed back of the individual front seats. The car has a wheelbase of 127 inches, affording three inches additional room, lengthwise, in the tonneau. Other features of special importance are:

The specially designed frame with sides six inches deep. It's a positive guarantee against sagging or loosening of parts. Widened toward the rear end, it affords a continuous, solid body support.

The long, semi-elliptic springs—rear 57 inches, front 39 inches—and the direct spring drive, with the rear springs swung under the axle, bringing the car close to the ground without interfering with the road clearance.

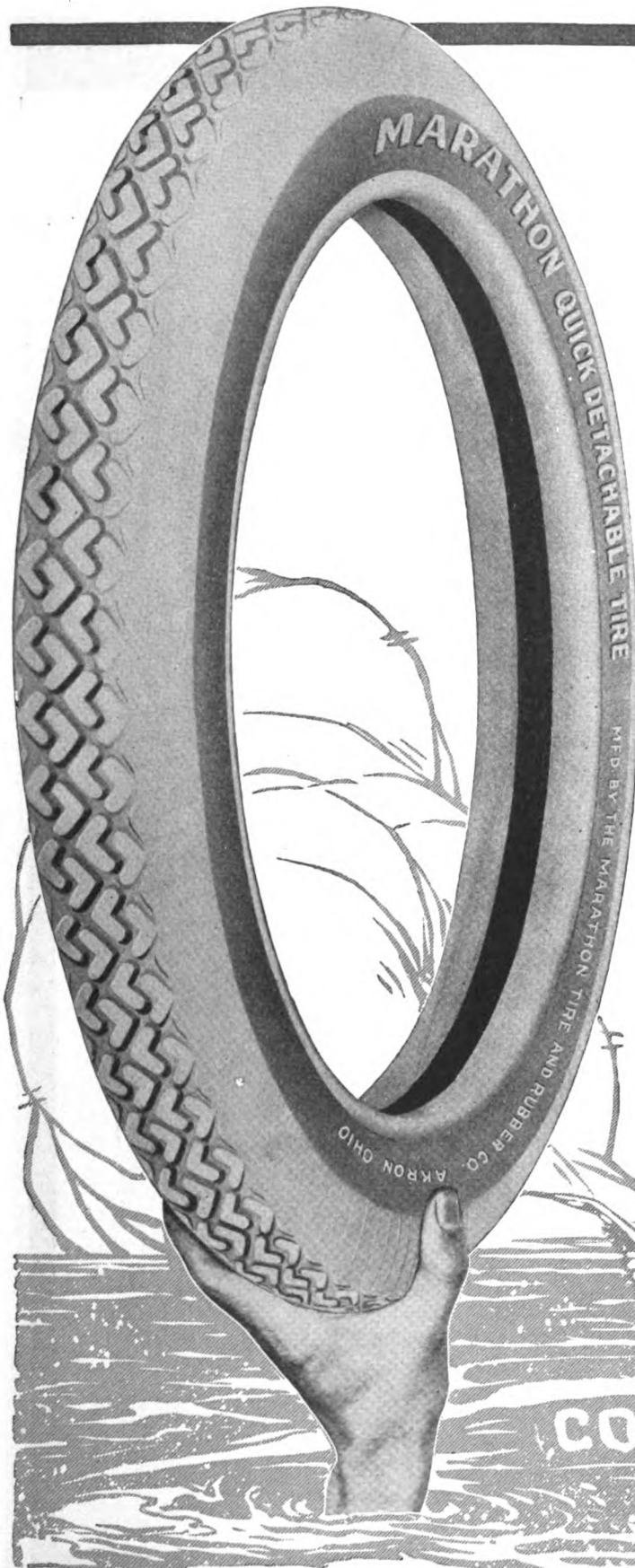
The big, full-floating rear axle with silent, helical gears; oversize roller bearings; heat-treated front axle with ball bearings in the steering knuckles to insure easy steering.

The improved motor, with counter-balanced crank shaft and aluminum pistons.

The latest improved Delco separate motor, generator and timing equipment.

Cole Motor Car Company, Indianapolis, U. S. A.
Builders of the Standardized Car

The Power of Quality



Tire Dealers—

By sheer power of **Quality**, the demand for Marathons has increased our output from a few tires a day to a daily capacity of more than one thousand—all hand-built tires.

And hundreds of Marathon dealers, backed by the **Quality** of Marathon Tires, have built up a **Quality** trade in tires and other supplies, that is **all their own**—permanently entrenching themselves against the wide-open competition of tires made to sell at a popular price.

MARATHON

FABRIC AND WHIP-CORD TIRES
Guaranteed for 5000 Miles

Built to meet the demand for **Quality**—not the competition of price.

The Exclusive Agency

for Marathons means having the **Quality** store of your locality; it means price protection that rewards you for **Good Service**; and it means the kind of advertising and selling support that brings the **Quality Trade** your way.

Write for open Territory

The Marathon Tire & Rubber Co.
Cuyahoga Falls, Ohio

When writing advertisers please mention Motor World

MARMON 34

A Scientifically Constructed Light Weight Car



Announcing a New Automobile

LET us say in the beginning that only the *facts* about this new car will be published for it is against our policy to allow any announcement to smack of sensationalism.

We have stated, and so have the publishers of this paper, after careful investigation

- *that this new car fully equipped will ride with comfort and safety and handle with extraordinary ease over ordinary highways at from fifty to fifty-five miles an hour.*
- *that it will easily do sixty-five miles an hour.*
- *that it will accelerate from ten to fifty miles an hour in less than eighteen seconds on any hard, level road.*
- *that it weighs only three thousand five hundred and forty pounds although of seven-passenger capacity, and one hundred and thirty-six inch wheel base, completely equipped with spare wheel and tire, with gasoline, oil, and water compartments filled, and full complement of tools.*

These are *demonstrable* facts. Unprejudiced men have seen them demonstrated.

Then is the Marmon the *new motor car* that will sooner or later take the better-class motor car buyers by storm?

We firmly believe the answer is in the affirmative, and that you will be willing to so answer that question just as soon as you have tried this unusual car. For here is a motor car that is as *beautiful* as it is efficient.

We will state without hesitancy, and we are conservative, that no car in the world is built better.

This model has been two years in development with fourteen years of successful motor car building experience back of it, plus a manufacturing experience that dates from 1851.

We know materials thoroughly, we use only the best, and we build every important part of this car ourselves.

The Marmon 34 is a car of remarkable power, perfect balance, light weight, extremely easy to handle, refined in every detail, of beautiful design and striking individuality—in short, the *finished car*.

We invite the motor-car industry to keep our every statement in mind and examine the Marmon car.

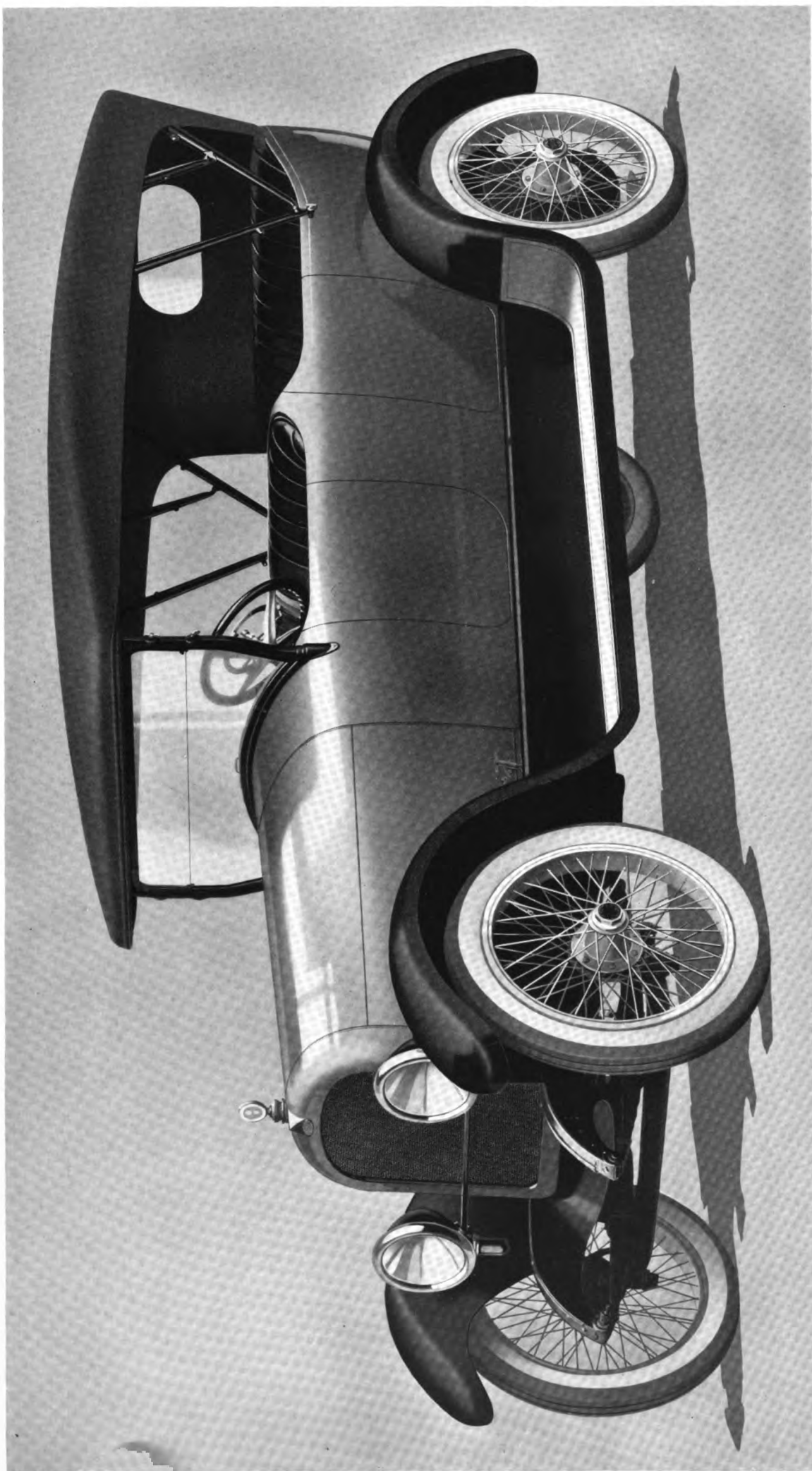
NORDYKE & MARMON COMPANY

ESTABLISHED 1851

NEW YORK SHOW
Space A18, First Floor

INDIANAPOLIS INDIANA

CHICAGO SHOW
Space H2, Coliseum



MARMON 34

*A Scientifically Constructed
Light Weight Car*

SPECIFICATIONS OF THE MARMON 34

<i>Body Types</i>	<p>THE <i>Marmon 34</i> is furnished with the following body types: Seven-passenger touring, five-passenger touring, four-passenger "Club" roadster, three-passenger "Club" roadster.</p>	<i>Body</i>	<p>second — front seats with compartment for folding chairs; third — tonneau seats. The floor boards are 24½ inches from the ground.</p>
<i>Wheelbase</i>	<p>The <i>wheelbase</i> is 136 inches. Short turning radius.</p>	<i>Upholstery</i>	<p>The <i>upholstery</i> is removable, the extra seats fold into a compartment when not in use, and passengers sit deep in the car at comfortable height, with plenty of leg room.</p>
<i>Weight</i>	<p>The <i>weight</i> of the seven-passenger touring car, ready for shipment, is 3295 pounds. The actual weight of this car, in full touring trim — extra wheel and tire and all gasoline, oil, and water compartments filled — is 3450 pounds for five-passenger car, 3540 pounds for seven-passenger car.</p>	<i>Springs</i>	<p>The <i>rear springs</i> are of the compound cantilever type, mounted across to the rear of the frame and axle, eliminating side sway and giving perfect spring action and balance. All springs are self-lubricating.</p>
<i>Aluminum</i>	<p><i>Aluminum</i> is used more extensively than in any other car. The main structural member of the motor, the body, fenders, hood, radiator shell, and many small castings — usually of iron or bronze — are of aluminum.</p>	<i>Front Axle</i>	<p>The <i>front axle</i> is an I-section drop forging with marine-type thrust-bearing steering spindle, operating in self-contained oil bath.</p>
<i>Motor</i>	<p>The <i>motor</i> is six-cylinders, bore 3¾ inches, stroke 5⅛ inches, with quiet, efficient overhead valve construction. The en-bloc cylinder casting, water jackets, bearing supports, and crank case are combined in a single aluminum casting. Hard-iron cylinder barrels fit in the aluminum casting with a cast-iron firing head. Motor lubrication is by the famous Marmon hollow crank shaft force-feed system, supplemented by a hollow rocker arm pivot so that all valve parts are lubricated by pressure feed. Cams are integral with cam shaft, cut from a single steel forging.</p>	<i>Clutch</i>	<p>The famous <i>Marmon cone clutch</i>, transmission suspended on front end of torque tube, tubular propeller shaft, and perfectly aligned helical gear — give a silent drive and a saving of power.</p>
<i>Lubrication</i>		<i>Oiling</i>	<p><i>Only four grease cups are used</i>, and these are on the steering connections. The front axle spindles, clutch release collar, transmission and rear axle run in medium weight oil sufficient for 15,000 miles.</p>
<i>Frame</i>	<p>The <i>frame</i> is of extraordinary depth — ten inches. The steel running boards, hot riveted to the side members, form a part of the frame.</p>	<i>Wheels</i>	<p>Five <i>wire wheels</i> are standard equipment. Tires, Silver-town cord 34 x 4½ inches, front and rear.</p>
<i>Body</i>	<p>The <i>body</i> bolts direct to the frame without sills or subframe. It is made in three sections: First — cowl, containing gasoline tank, wind shield supports, and instrument board;</p>	<i>Equipment</i>	<p>Bosch magneto, generator, and starting motor. Every <i>convenience</i> that may be desired for general use is furnished.</p>
		<i>Prices</i>	<p>\$2700 for three, four, and five-passenger models; \$2750 for seven-passenger model. All prices f. o. b. Indianapolis.</p>
		<i>Deliveries</i>	<p><i>Deliveries</i> are now being made.</p>

NORDYKE & MARMON COMPANY

ESTABLISHED 1851

INDIANAPOLIS INDIANA

MARMON 34

A Scientifically Constructed Light Weight Car



THE Marmon method of building motor cars has been developed through fourteen years of continuous success.

And the Nordyke & Marmon Company had been successful manufacturers of machinery for fifty-one years before the first Marmon motor car was produced. We have never experimented at the expense of Marmon dealers or owners.

We have never introduced a *novelty* in any Marmon car though we *have pioneered* in placing new *features* on the motor car market through the medium of our cars. We have *developed* novelties, and used the resulting practical features, but we have done the experimenting and developing in the Marmon *factory* at Marmon *expense*.

Our first car built in 1902 marked the beginning of the general use of side-entrance tonneau. It had straight-line drive, selective-type sliding gear transmission, double brakes on rear wheels, controls on the steering column, and the famous hollow crank shaft and force-feed oiling system — features now universally used.

We have never jumped forward just “to be first.” So we are usually first when it comes to *practical* advance.

We emphasize this point because in our new 34 there are features that may seem novel.

For instance — the Marmon 10-inch frame, of which the running boards form a part, the compound cantilever cross-suspension rear spring, the fact that there are only four grease cups on this car, and the extensive use of aluminum.

But these features and others have a definite place in Marmon *performance*. They are not included either to *meet competition* or to “take it unawares.” We never have introduced a feature merely for its value as a “talking point.”

The Marmon's greatest feature is that intangible, undescribable thing called performance, for educated buyers finally *purchase* on the strength of a car's performance and Marmon performance is so *unusual* that every Marmon car not only *stays* sold but its owner unconsciously becomes a Marmon salesman working for you who sell these cars.

Single features, no matter how good, in any automobile are forgotten in the general results shown by the car on the road.

The Marmon has the features to impress those who place importance on single features, but its great *permanent* selling power is in *Marmon performance* and it is the conviction of the officials of this company that in this the Marmon leads all cars.

AN OPPORTUNITY FOR THE DEALER

We are increasing our output this year. There are sections where the Marmon is not represented — communities where there are real opportunities to market this type of car. Experienced dealers who are interested in real worth-while advancement are invited to communicate with

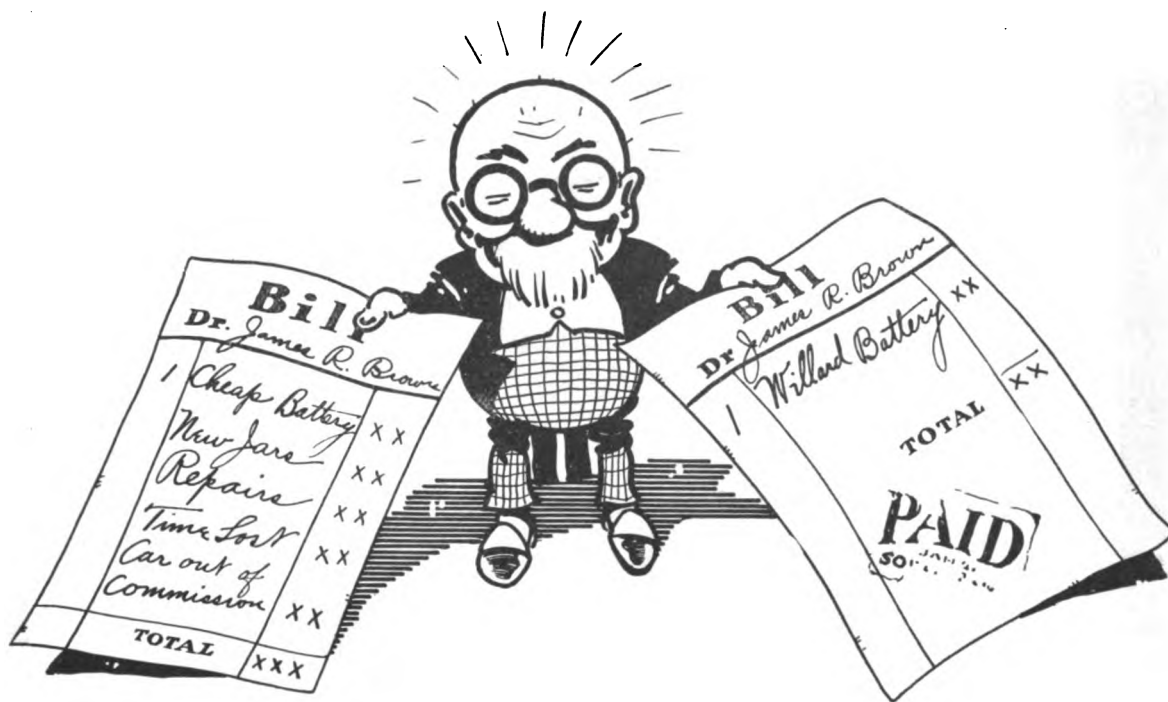
NORDYKE & MARMON COMPANY

ESTABLISHED 1851

NEW YORK SHOW
Space A18, First Floor

INDIANAPOLIS INDIANA

CHICAGO SHOW
Space H2, Coliseum



CHOOSE!

In buying a storage battery, you pay for quality. But do you really get what you pay for?

If you buy a cheap battery instead of a Willard, you may think for a few months you have made a wise buy. Then things begin to happen. A jar cracks, the plates buckle; acid leaks out; starting and lighting system is dead. The nearest service station for that make of battery is two hundred miles away. *Then* who pays? Again it is you, the consumer. And you not only pay in actual cash for repairs, but in discomfort and inconvenience as well.

The man who buys a cheap battery pays as much as or more than the one who buys a Willard. But after a given period of time, the Willard man has a good battery to show for his expense and the other fellow has a "wreck."

Willard construction and Willard service help to make the first cost the only cost. Write for free booklets, P-15, "Truth Telling Tests," and P-16, "Your Storage Battery," of interest to every car owner.



Willard Storage Battery Company

Cleveland, Ohio

New York Branch: 228-230 W. 58th St.
Chicago Branch: 2524-30 So. Wabash Ave.
Oakland, Cal. Branch: 2509 Broadway

Indianapolis Branch: 316-318 North Illinois St.

Detroit Branch: 736-38-40 Woodward Ave.
San Francisco Branch: 1433 Bush Street
Atlanta Ga. Branch: 8-10 East Cain St.

Service Stations in All Principal Cities in the United States, Canada and Mexico



HERE, Mr. Motorist, you see the whole bunch—Mr. Shine and his 12 Shine-ups—right on the job! You never saw such a bunch of busy world-brighteners in all your life! No, sir!

Here they are—THE **Be-Be-Co** MOTOR CAR SPECIALTIES:

Mohair Top Dressing
Leather Top Dressing
Top Lining Dye

Seat and Slip Cover Cleaner
Cushion Dressing
Metal and Body Finish (gloss and dull)

Brass Polish
Nickel Polish
Body Polish

Motor Car Soap
Tire Paint (red, white, gray)
Hand Cleaner

When writing advertisers please mention Motor World



This baker's dozen of motor car specialties gets as near to perfection as is humanly possible. **You need 'em now.** Tell Mr. Dealer you want **Be-Be-Go**. They keep your car well groomed 365 days in a year.

BOSTON BLACKING COMPANY (SPECIALTY)
(Est. 1890. Inc. 1900) DEPT.

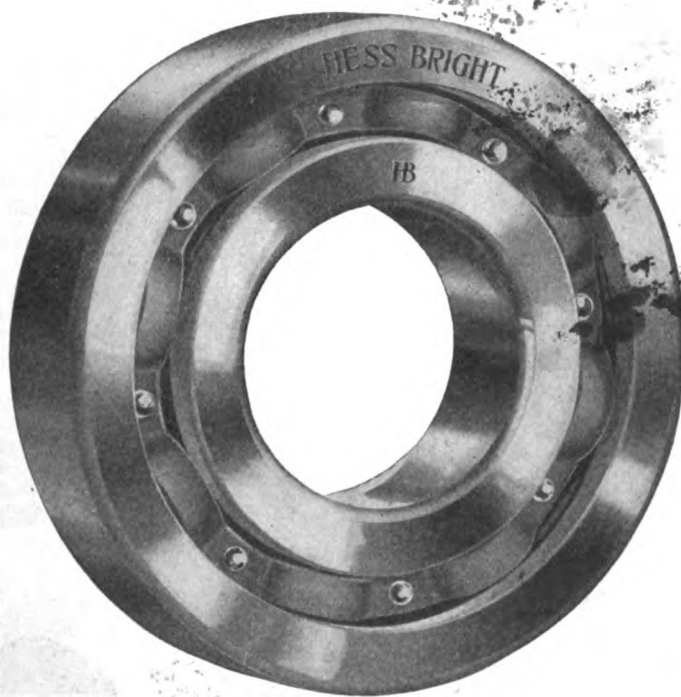
EAST CAMBRIDGE, MASS. (Home Office and Factory)

Branch Factories: Chelsea, Mass., Montreal, Canada, England, Germany, France, Austria, Sweden, Italy, Australia. Branch offices and warerooms in all large cities.

When writing advertisers please mention Motor World



HESS-BRIGHT
THE INIMITABLE BEARING



Compliments of the Season

The Hess-Bright Mfg. Co.
Philadelphia, Pa.

HESS-BRIGHT'S CONRAD PATENTS ARE THOROUGHLY ADJUDICATED

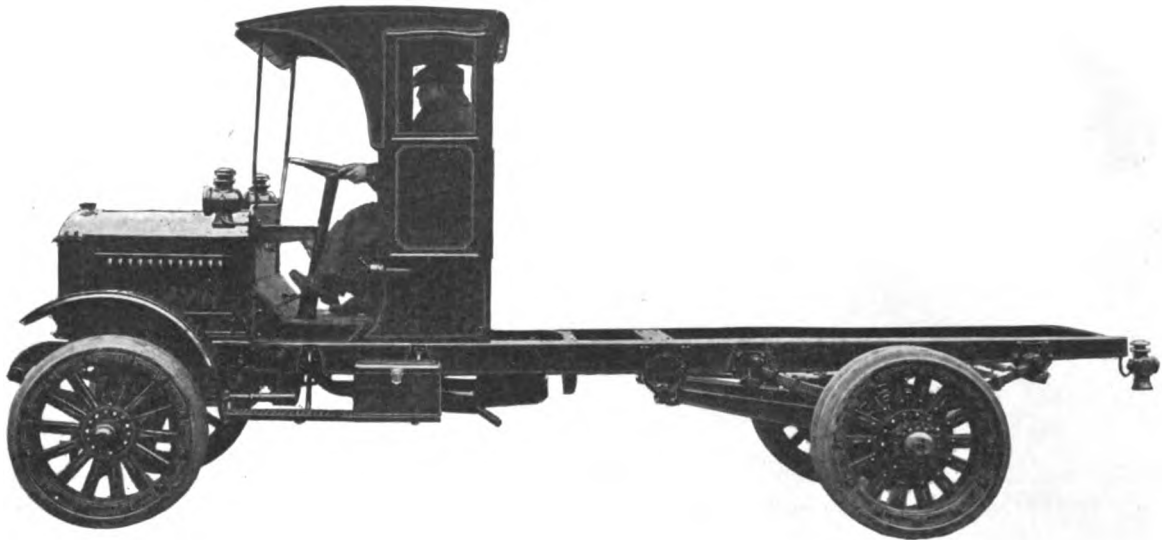
When writing advertisers please mention Motor World

Bessemer Motor Truck Company, Grove City, Pa.

The appointment of the
BESSEMER MOTOR TRUCK CORPORATION

FRED T. NESBIT, President

Long Beach Bldg., Lexington Ave., & E. 42nd St., (2 blocks from the Grand Central Palace)
NEW YORK



as distributors of BESSEMER Trucks in the following territory—

**New England, Eastern New York, Eastern Pennsylvania,
New Jersey, Delaware, Maryland, Virginia
and the District of Columbia**

is announced

A cordial invitation is extended to those who contemplate entering the truck business in the territory outlined to call and inspect the line—

Model "G" 1 ton Internal Gear Drive Truck, \$ 975.

Model "D" 2 " Worm Drive 2000.

Model "E" 3½ " Worm Drive 2800.

and to take up all matters pertaining to the BESSEMER Agency with the above concern.

**BESSEMER MOTOR TRUCK COMPANY
Grove City, Pa.**



PROTECTION for the car and for the people who ride in the car, protection for the dealer and for the owner—this is the basic idea that underlies our business. You must pay a big premium for protection from fire, burglary, accident and liability. But you secure protection from wear and tear and rapid depreciation at very low cost when you buy

WARNER AUTO UPHOLSTERY COVERS

FIT LIKE A GLOVE
DUST-PROOF WEAR-PROOF

We honestly believe that there are no auto upholstery covers manufactured in America that represent better values, better materials, fit and workmanship than those which we manufacture and sell under our own name. You will realize the truth of this assertion from the moment you snap a set of these covers over your automobile seats. They are especially designed for the car you drive, and are readily attached by means of instantaneous fasteners.

We know that our proposition is better for the dealer because we manufacture exclusively for the trade, and sell exclusively through the trade; our list prices are fair, our discounts are liberal, our service is prompt and reliable and we guarantee price protection to September first, 1916, to all dealers under contract with us.

The cost of everything that enters into the manufacture of Warner Auto Upholstery Covers is advancing by leaps and bounds. If you have not already received our catalog, price list, swatches, display hanger and dealer contract, write today.

THE WARNER AUTO-TOP COMPANY
1640-1644 Central Avenue Cincinnati, Ohio

Established Thirty Years



HARDMAN
"SURE-GRIP"
-TIRES-



If You Attend the New York Show

☞ Don't fail to get in touch with us before you leave.

☞ Our telephone number is Branch Brook 4510. Call us up and we will arrange to see you at your convenience.

☞ If your territory is open there is an opportunity for you to contract for the highest grade tire agency you can secure.

☞ Hardman Sure Grip tires are high quality, high priced tires, guaranteed for 5000 miles.

☞ They are such tires as your best customers want.

☞ Our plan of distribution calls for the establishment of a few high grade distributors—so located as to offer big money-making possibilities to live men.

☞ At least you should listen to our story.

*Don't forget to call us up—or
write today for an opportunity*

Hardman Tire & Rubber Co.
Belleville, N. J.

During Show Week the Hotel Martinique is the best place in New York to feel the pulse of the automobile industry.

Here it is that the representative men of that industry make their personal headquarters. Here it has been their custom to come for years. Here it is that the same hearty welcome awaits them again this year—the same service—the same comforts and the same endeavor to make them glad they came.

Make your reservations now if you would be located in the midst of the men you want to meet at this year's Automobile Show.

Room with private bath.....\$2.50 per day
Room with private bath..... 3.00 per day
Room without bath..... 1.50 per day

RESTAURANT PRICES MODERATE

The Hotel Martinique
"The House of Taylor"

On Broadway, 32nd to 33rd St., New York



Hotel Marie Antoinette

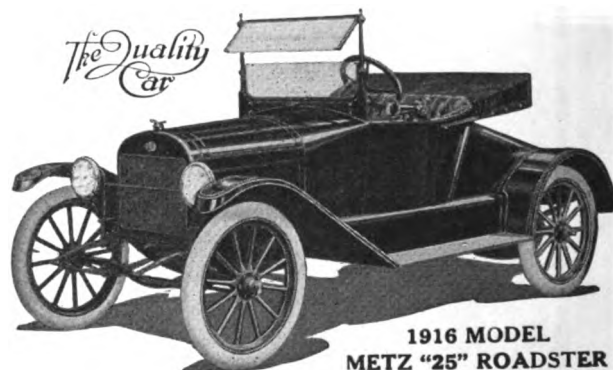
Broadway, 66th, & 67th Streets
NEW YORK CITY

SITUATED in the most convenient location in town. Modern in every detail, absolutely fireproof, within ten minutes of the leading department stores, shops and theatres. Convenient to Pennsylvania and Grand Central Depots.

Rooms, with Bath, \$2.50 Per Day up. Suites, \$4.00 Per Day up.
Rooms \$1.50 Per Day up

Restaurant of Unusual
Excellence

H. STANLEY GREEN,
Managing Director

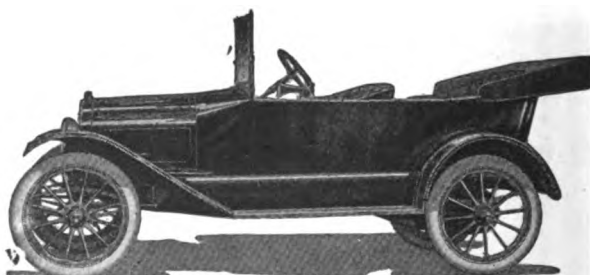


1916 MODEL
METZ "25" ROADSTER

METZ

1916 models. Price, \$600 each, completely equipped. Both Roadster and Touring Car built on same chassis, 108-inch wheel base, and carry identical equipment, including electric starter and electric lights, 25 h.p. water-cooled motor, large wheels and tires, rain vision wind shield, instant one-man top, speedometer, built-in gasoline gauge, signal horn, etc. Write for DEALER particulars and new illustrated catalog "B."

METZ COMPANY, WALTHAM, MASS.



1916 MODEL, METZ "25" TOURING CAR

Jeffery Pleasure Cars

*Ushering
in a
New
Motoring
Era*

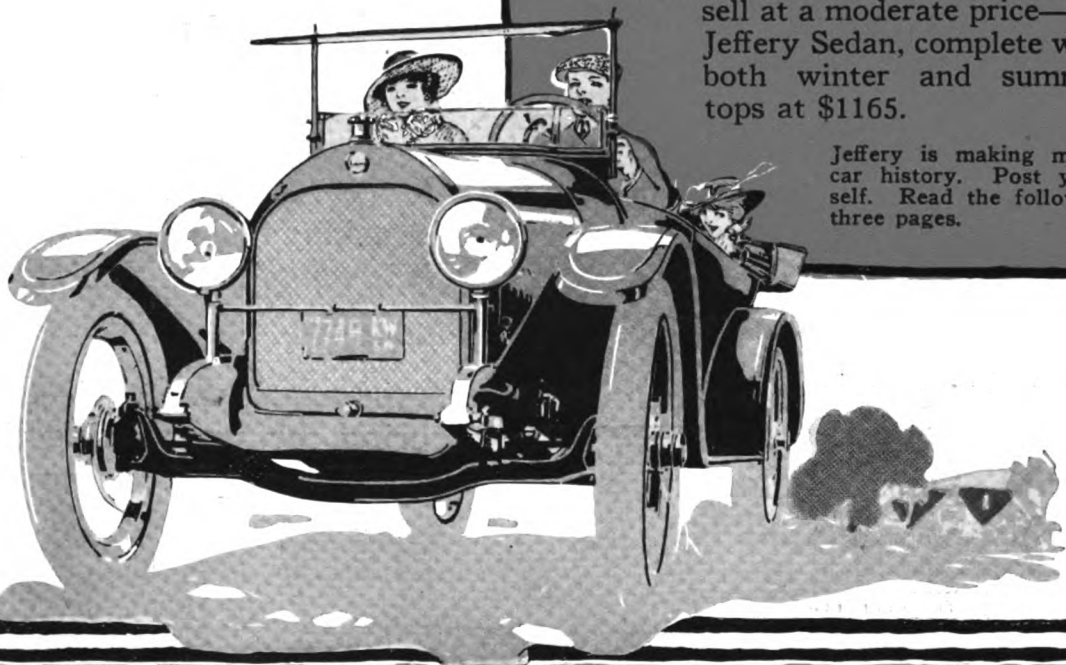


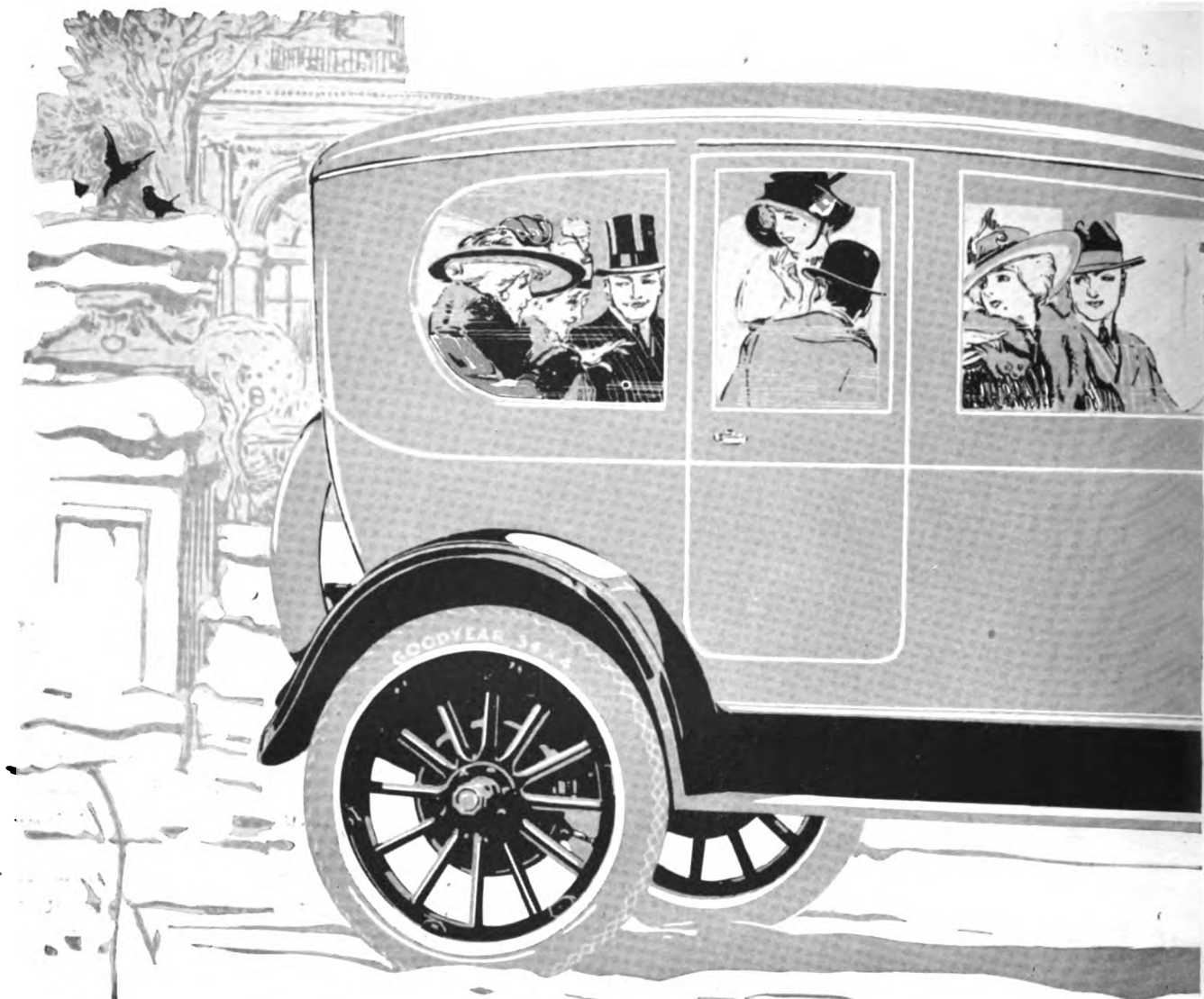
For 14 years the THOMAS B. JEFFERY COMPANY has been making motor car history.

It fostered the first American car with the now famous light-weight high-speed motor—built the first automobile of its quality, size and efficiency to sell below \$2000, the original Jeffery Four—designed and constructed the amazing JEFFERY "Quad," the truck whose fame has spread 'round the world.

As to more recent achievements, two of the outstanding sensations of 1916 were JEFFERY sensations—the establishment of a new standard of motor car value at a thousand-dollar price and the announcement of the first enclosed coach of real quality to sell at a moderate price—the Jeffery Sedan, complete with both winter and summer tops at \$1165.

Jeffery is making motor car history. Post yourself. Read the following three pages.





Don't Envy Closed Car

Heretofore only the wealthy few could afford a closed car.

Now with the coming of the JEFFERY Sedan at \$1165 the prohibitive cost associated with closed cars has been forever removed. The JEFFERY Sedan for the first time puts closed car luxury, style and comfort within reach of large numbers of motorists. It is making real the dreams of those who have always envied closed car convenience without feeling entirely able to afford it—until now.

Think of it! At last a custom-built enclosed coach at \$1165—only \$165 over the price of the JEFFERY Four touring car, yet offering the same features formerly associated only with closed cars costing from \$2000 to \$5000.

The Jeffery Sedan

\$1165

*Enclosed Top Removable—
Summer Top Included*



The roof of the JEFFERY Sedan is of laminated wood construction covered with a very fine quality of top material. The rear section of the body of the top is of metal. The supports and sills are built substantially, giving a rigidity of construction which meets every test.

The windows are of $\frac{1}{8}$ -inch crystal plate, ground and polished. In the two broad forward windows and in the doors the glass is arranged to drop half way, affording ample ventilation.

The illumination of the interior is provided by an electric dome placed in accordance with the latest enclosed car practice.

Divided front seats afford easy access from the rear to the front compartment, doing away with fore doors, thereby providing wider windows, a broader vision and longer unbroken body lines.

The upholstery is grey whipcord—leather seats optional. The window curtains—portiere type.

Comforts—Enjoy Them!

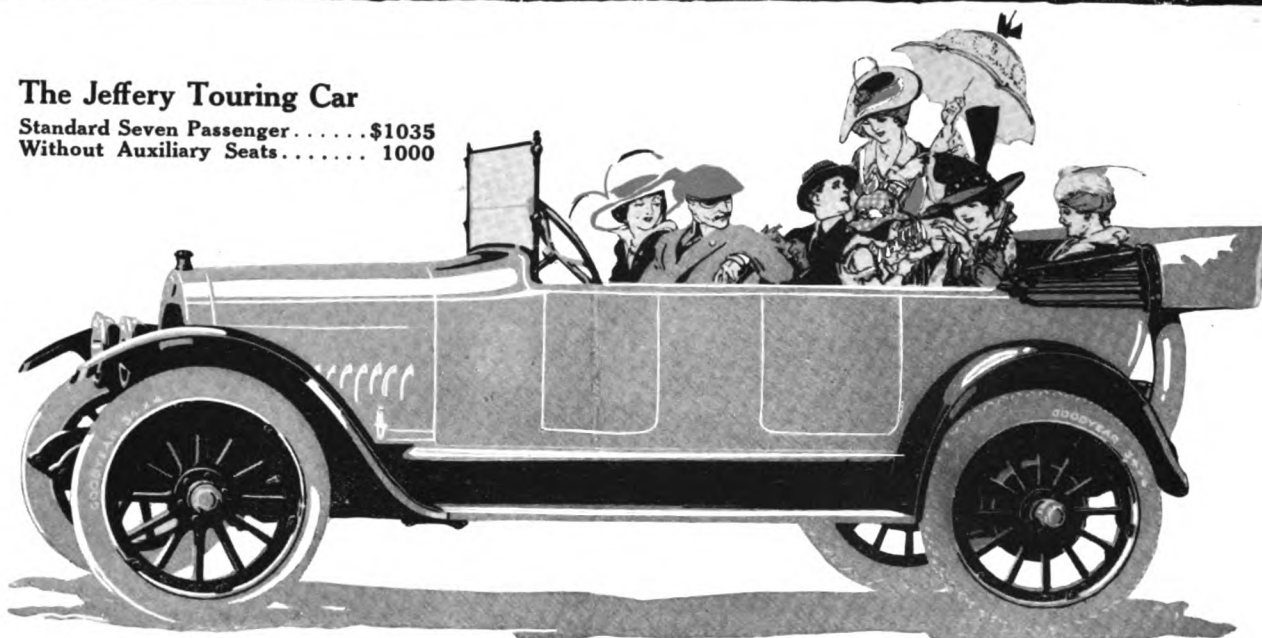
And when summer comes it is a simple matter to remove the Sedan top—giving you a touring car with summer top—at NO EXTRA COST. Here you have virtually two cars in one at the price of one car alone!

Judge the Jeffery Sedan first by appearance. You will find no flaps, exterior curtains, buttons or unsightly bolts. Body and top blend perfectly. Body and top are flush with each other. Each top is tailored especially to the particular body which carries it—thereby eliminating every possibility of looseness, rattling, squeaking or rumbling.

And the upkeep of the JEFFERY Sedan is in the touring car class. For with all its strength and firmness the weight of the Sedan top is but approximately 200 pounds, only a trifle over 100 pounds additional to the weight of the JEFFERY summer top—ample insurance of economical operation.

The Jeffery Touring Car

Standard Seven Passenger.....\$1035
Without Auxiliary Seats..... 1000



Jeffery Cars 93% Jeffery Built

JEFFERY cars are built almost entirely beneath the JEFFERY roof—including even bodies, tops, axles and other parts usually purchased from special makers. We are dependent neither upon the deliveries nor quality standards of parts manufacturers. The JEFFERY plant is one of the largest and most scientifically equipped of its kind in the world. JEFFERY workmen are highly paid. The result—JEFFERY Quality has become a proverb among JEFFERY owners. This winter, during what is generally known as the dull season, 3,000 men have been steadily employed in the JEFFERY factory as against 1,300 last year. Shipments during the first six days of this month exceeded those of the entire month of December last year.

JEFFERY dealers everywhere are doing a record-smashing business—winter as well as summer. An opportunity for a limited number of new dealers will be open the first of the year. Investigate. Orders must be placed immediately to insure early deliveries. Write or wire us.

The Jeffery Four Touring Car

Standard Seven Passenger.....\$1035
Without Auxiliary Seats..... \$1000

The Jeffery Four, Three-pass. Roadster..\$1000

The Jeffery Sedan

Five Passenger\$1165
Seven Passenger\$1200

The Jeffery Quad—the truck that drives, brakes and steers on all four wheels...\$2750

The Thomas B. Jeffery Company

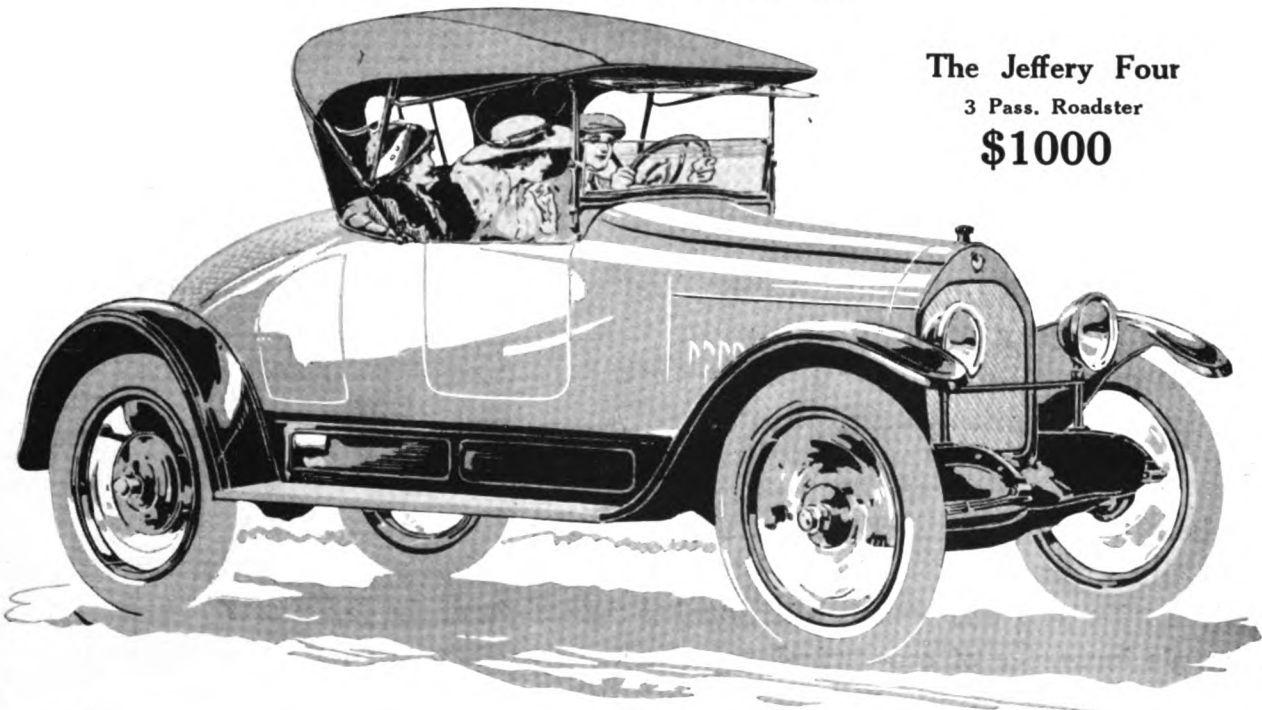
Main Office and Works. Kenosha. Wisconsin

Builders of Motor Cars Since 1902

The Jeffery Four

3 Pass. Roadster

\$1000



ZERO

Form K
Mercury Arc
Rectifier



On a frosty morning with the mercury hovering around zero, when the car owner steps on the starting pedal—and nothing happens—he will probably find that cold has affected his battery. Because: Weak batteries freeze readily, causing damage to the plates. Extreme cold reduces the battery capacity fully fifty per cent.

Then, perhaps, the car owner will remember the advertisements he saw in Motor and Motor Age telling him how easy, convenient and economical it is to keep batteries always fully charged with the new portable Form K Mercury Arc Rectifier. The car owner will come to your store for the Rectifier.

Why not get your share of this profitable business?

Write our nearest representative for dealer discounts and prices.

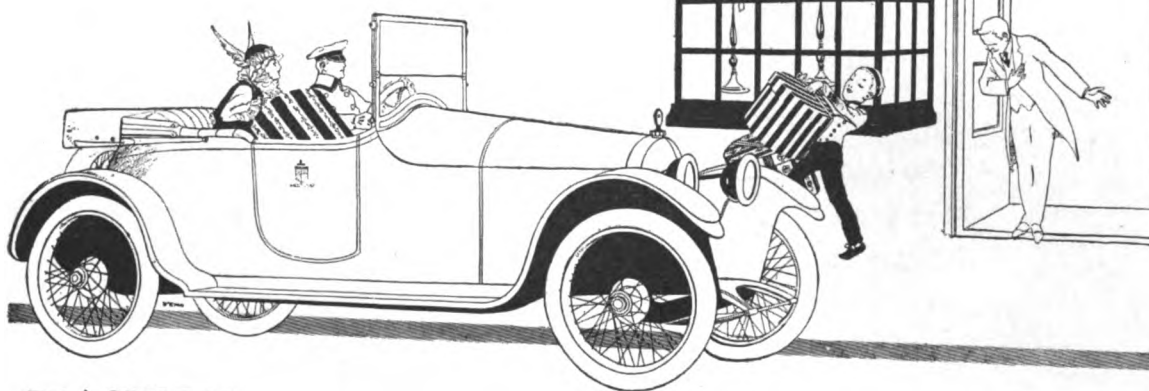
General Electric Company

General Office  Schenectady, N. Y.

Sales Offices in All Large Cities

8515

Fashion



FASHION is the ultra expression of progress; the epitome of the world's advancement; the firing line of knowledge in any individual line.

As wisdom grows fashions change, bringing—to those who care—better and newer enjoyments, discarding the old to merely utilitarian purposes.

Fashions have changed in motor cars as new styles have proved superior to old.

Scripps-Booth design means more than mere fashion; more than caprice of style. It means the result of a prophetic vision which has made in the Scripps-Booth present fact of what to others is a future possibility. Scripps-Booth closed cars are your logical choice for the winter's social season.



ROADSTER \$ 776
COUPE \$1450

Scripps-Booth Company
Detroit, Mich

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NEW DEPARTURE BALL BEARINGS

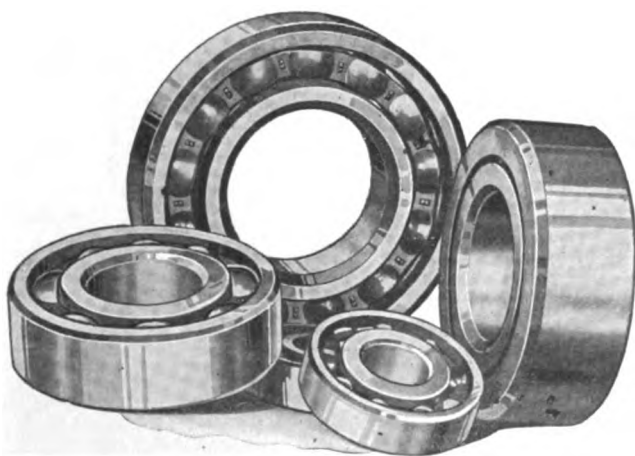
American Made for American Trade

The New Departure Double Row can be used for replacing other bearings of equal width, bore and diameter.

The New Departure Single Row is internationally standardized as to size of bore, diameter and width. They can be used in replacement of the same type of bearing, domestic or foreign.

Never again need you tie up a customer's car for several days on account of a bearing replacement. Whether you live in Maine or California there's a New Departure Service Distributor nearby who can supply you at once.

Send for List of Distributors.



THE NEW DEPARTURE MANUFACTURING CO.

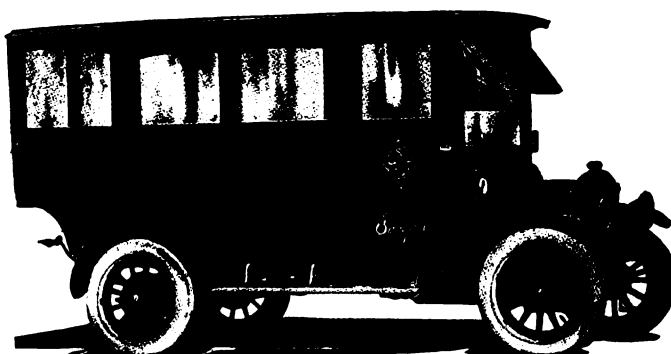
Bristol, Conn., U. S. A.
Conrad Patent Licensee

WESTERN BRANCH: 1017 FORD BLDG., DETROIT

Distributors in Trade Centers throughout the United States

For Continent of Europe:
Jacob Holst, Copenhagen, Freeport, Denmark

Sole British Agents: Brown Bros., Ltd. London and Manchester



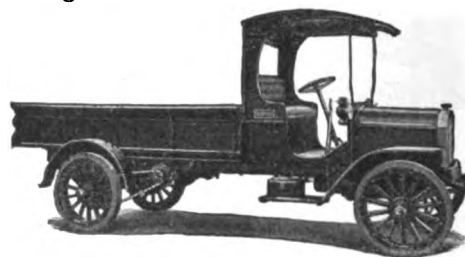
SANFORD MODEL "O" INTER-URBAN MOTOR BUS OR TALLY-HO

Capacity, fourteen passengers. Beautifully equipped with Electric Lights and Pneumatic Tires. A Money-Maker for Passenger Traffic.

Model M
4000 lbs.

\$2000
Express

\$1910
Chassis



Model M

We have a money-making proposition for Live Dealers Everywhere. Write for this today.

SANFORD MOTOR TRUCK COMPANY
Syracuse, N. Y.

ABSOLUTELY FIREPROOF

HOTEL CHELSEA

WEST TWENTY-THIRD STREET
AT SEVENTH AVENUE
NEW YORK CITY

EUROPEAN PLAN

500 Rooms

400 Baths

Rooms with Adjoining Bath, \$1.00 and \$1.50
Room with Private Bath 2.00
Suites—Parlor, Bedroom and Bath . . 3.00
and upward

Club Breakfast 25c. up
Special Luncheon 50c.
Table d'Hote Dinner 75c.
Cafe Attached

To Reach Hotel Chelsea

From Pennsylvania Station, 7th Avenue car south to 23rd Street.

Grand Central, 4th Avenue car south to 23rd Street.

Lackawanna, Erie, Reading, Baltimore & Ohio, Jersey Central and Lehigh Valley R. R. Stations, take 23rd Street crosstown car east to Hotel Chelsea.

Principal Steamship Piers, Foot West 23rd Street, take 23rd Street crosstown car.

WRITE FOR COLORED MAP OF NEW YORK



These
Clean-Cut Vents
Made

You Can Make \$1.50 to \$2 in 15 Minutes While the Customer Waits

—and so can every one of your employees, with the MAYO Louvre Cutter. Opens clean-cut vents in unventilated hoods in 15 minutes, and car owners are glad to pay \$1.50 to \$2 cash, for the job.

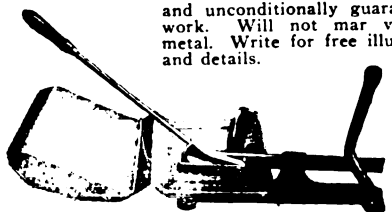
MAYO LOUVRE CUTTER

—returns profits on transient as well as local business. Any car from anywhere is a prospect, if it has an old-style hood. In 15 minutes the hood is a 1916 model.

One garageman took in \$80 the first week, with his MAYO Louvre Cutter. Others are making back their investments in a few days. So can you.

Sold On 10 Days' FREE TRIAL

and unconditionally guaranteed to do the work. Will not mar varnish or crack metal. Write for free illustrated literature and details.



Mayo Mfg.
Company
65 E. 18th St.
CHICAGO

In Fifteen
Minutes
by This
Machine and One Man

KISSELKAR

The Kissel Detachable Top, first introduced by Kissel, provides for summer and winter use of the same car. Easily attached or detached in your own garage. Ask for literature—Touring Cars \$1050 to \$1750—Roadsters \$1150 to \$1650—ALL-YEAR Cars \$1450 to \$2100.

Kissel Motor Car Co., 159 Kissel Ave., Hartford, Wis.

The ALL-YEAR Car

CARSRING TIRES

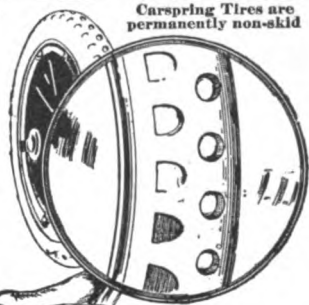
BEST UNDER A CAR—BEST ON EARTH

Will establish you in business on a permanent and profitable basis.

Our Policy:

One good dealer in each territory, backed by the best goods and unlimited co-operation.

New Jersey Car Spring
& Rubber Company
Jersey City, New Jersey



Carspring Tires are permanently non-skid



You need Steer Warms every day for the next five months.

For even after real hard winter is over, the nights are cool for weeks and weeks. So cool that ordinary gloves won't keep your hands warm unless your steering wheel is equipped with a set of

STEER WARMS

They consist of two leather-covered grips that lace on to the wheel at any place convenient for driving, and are heated by electric current from battery or magneto (on Ford Cars). Steer Warms maintain an even high temperature and consume little current. If you want to run your car in the winter, Steer Warms make driving comfortable. They make driving safer, too. Warm, limber fingers grip the wheel better—you can steer safely on icy streets. Besides they ward off cold—warm hands warm the body, and a warm body doesn't catch cold. They save you, too, buying several pairs of heavy winter gloves—light gauntlets will do. Steer Warms are easy to attach. No holes to bore—no screws. Lace on—wire up—that's all. Never get out of order. Look well on car. Sold under a 5 year guarantee. If your dealer hasn't them, will send prepaid upon receipt of price. Money refunded if not as claimed. Descriptive circular upon request.

PRICES: For Ford Cars, \$5.00 In Canada, \$7.25
For Other Cars, 7.50 In Canada, 11.00

When ordering give make of car and voltage of batteries—if Ford, whether 1914 or '15 Model.

Dealers: Write at once for information about a fast selling winter accessory.

Laces on in 10 Minutes Consumes Little Current

Interstate Electric Company

4846 Perdido Street NEW ORLEANS, LA.

Partial List of Distributors

Wetmore Savage Co., Boston, Mass.	Martin Evans Co., Brooklyn, N. Y.
J. H. McCullough & Son, Philadelphia, Pa.	The M. & M. Co., Cleveland, O.
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Motor Car Supply Co., Chicago, Ill.	Puritan Machine Co., Detroit, Mich.
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United States Rubber Co., Rochester, N. Y.	
United States Rubber Co., Boston, Mass.	
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Kansas City Automobile Supply Co., Kansas City, Mo.	
Ballou & Wright, Seattle and Portland.	

MATTSON TIRES

will give you the chance to make your tire business show a real profit. They are **QUALITY** tires, listed so as to make quick sales and bring **REPEAT** orders. Connect with us **now**—and be ready for the terrific increase in spring demand.

Wise Dealers Wire

MATTSON RUBBER CO. Lodi, N. J.

Westcott

Six-41—5 Pass. 41 H.P. 1916—SIXES
Touring, \$1295

Six-41—3 Pass. 41 H.P.
Roadster, \$1295

Six-41—3 Pass. 41 H.P.
Cabriolet, \$1595

Six-51—7 Pass. 51 H.P.
Touring, \$1595

Six-51—3 Pass. 51 H.P.
Roadster, \$1595

Demountable Sedan Top,
Model 51 Touring,

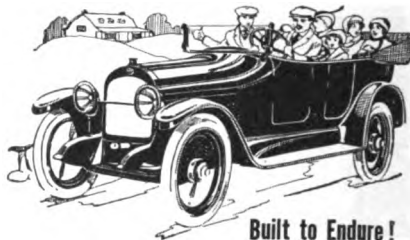
\$350 extra.

Six-41 Wheelbase 120 in.

Six-51 Wheelbase 126 in.

Six-41 Weight 2800 lbs.

Six-51 Weight 3000 lbs.



Built to Endure!

Westcott Motor Car Company, 1250 North E. Street, Richmond, Ind., U. S. A.

S. J. R.

Boulevard Roadster

\$855

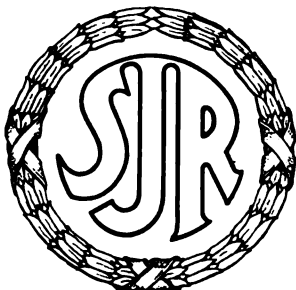
Four-cylinder Motor, 3¼ x 5,
en bloc.

Cantilever Springs.

108-in. Wheelbase.

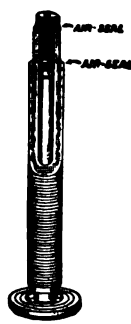
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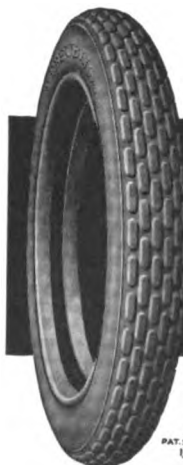
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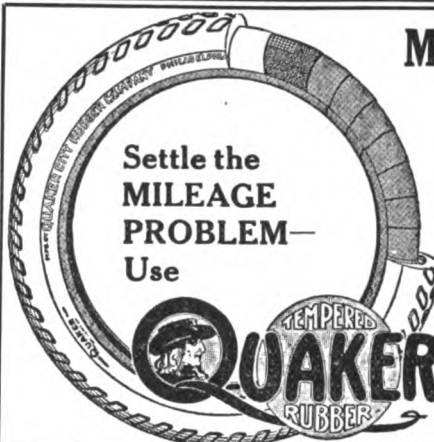
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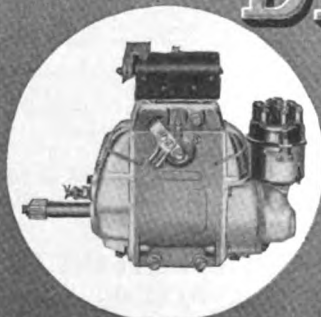
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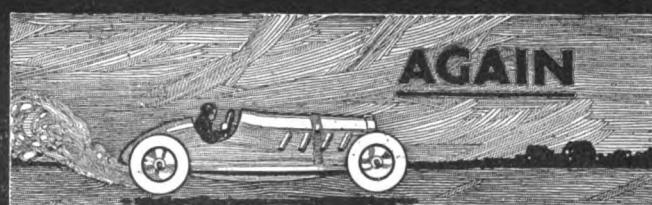
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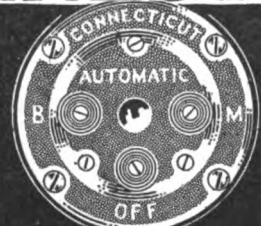
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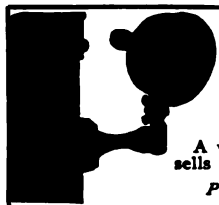
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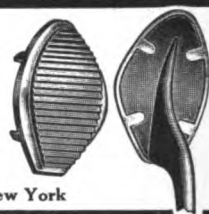
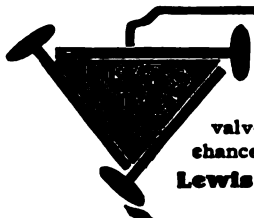
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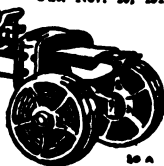
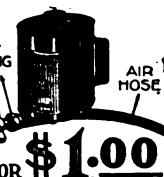
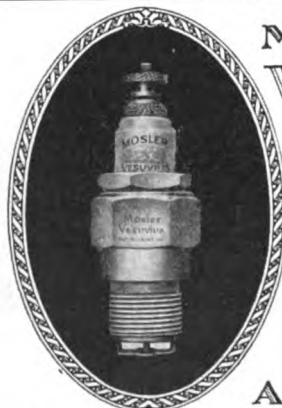
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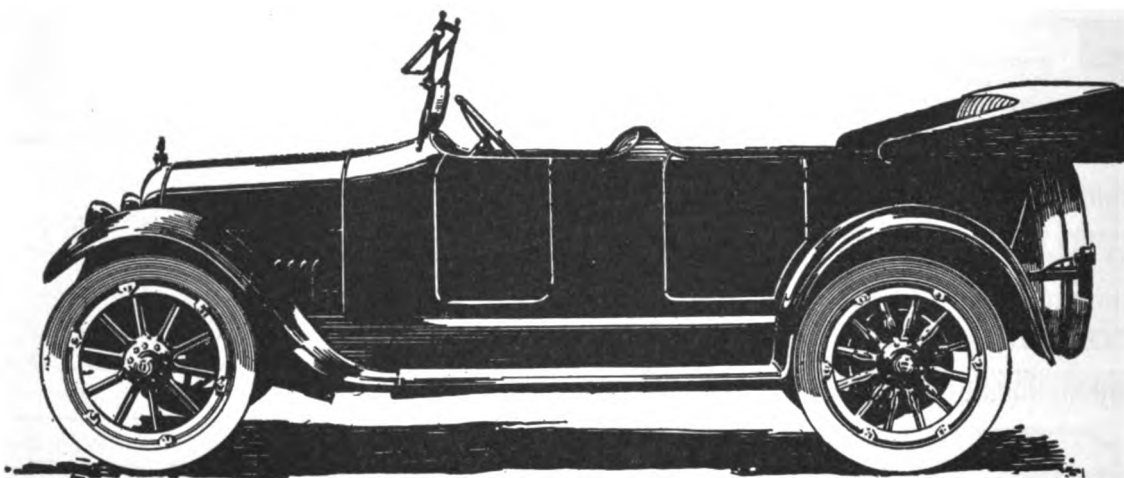
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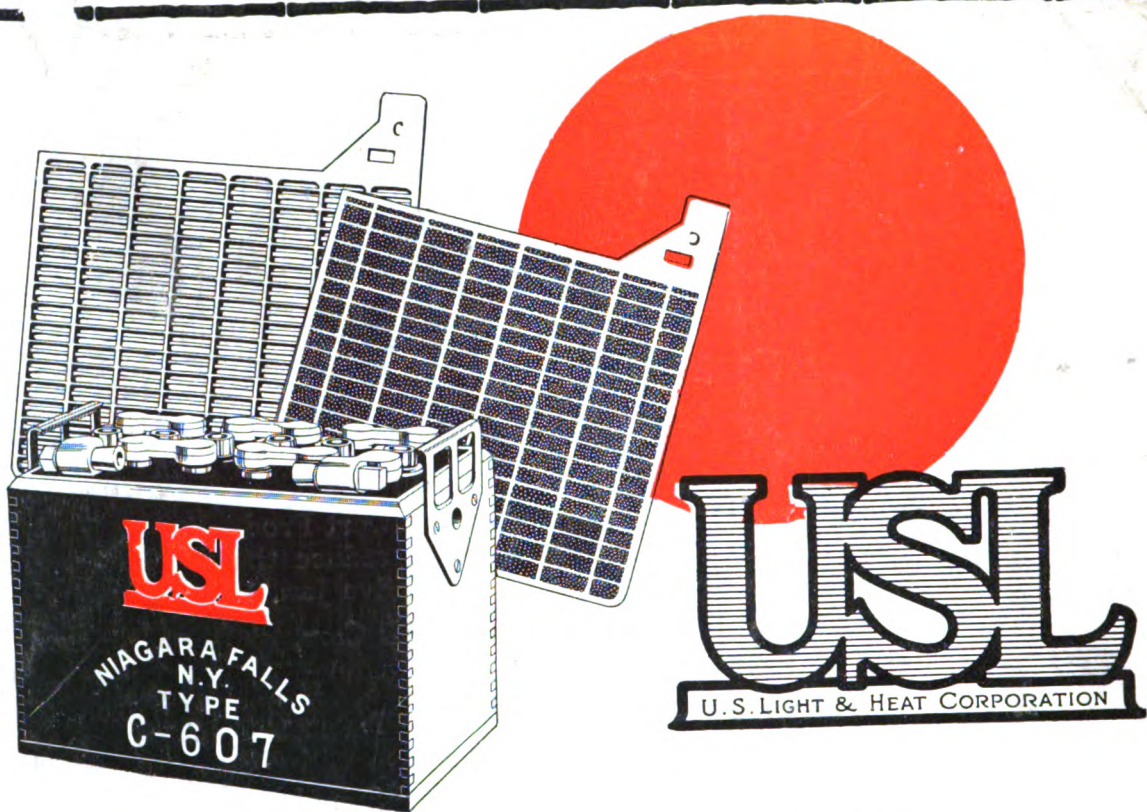
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